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TRANSACTIONS

—OF THE—

MEDICAL SOCIETY

OF THE STATE OF

NORTH CAROLINA.

FORTY-SIXTH ANNUAL MEETING

—HELD AT—

ASHEVILLE, N. C.

May 30th, 31st and June 1st, 1899.

CHARLOTTE, N. C.
Observer Printing and Publishing House,
1899.

Publication Committee.

R. J. BREVARD, M. D., Charlotte, Chairman.
D. O'DONOGHUE, M. D., Charlotte.
A. J. CROWELL, M. D., Charlotte.
GEO. W. PRESSLY, M. D., Charlotte.

ROSTER OF OFFICERS

——OF THE——

MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA.

	DATE.	PLACE.	PRESIDENT.	VICE-PRESIDENTS.	SECRETARY.	TREASURER.
	1849	Raleigh.	**F. J. Hill.**		W. H. McKee.	
1	1850	"	**Edmund Strudwick**	F. J. Haywood, C. E. Johnston, J. E. Williamson, W. G. Thomas.	"	W. G. Hill.
2	1851	"	**Edmund Strudwick**	C. E. Johnston.	"	"
3	1852	Wilmington.	**J. E. Williamson.**	Thos. N. Cameron, Wm. G. Hill, Johnston B. Jones, N. J. Pittman.	E. B. Haywood.	J. J. W. Tucker.
4	1853	Fayetteville.	"	W. G. Hill, Johnston B. Jones, J. G. B. Myers, N. J. Pittman.	W. W. Harris.	Daniel Dupree.
5	1854	Raleigh.	**J. H. Dickson.**	N. J. Pittman, J. G. B. Myers, J. Graham Tull, A. D. McLean.	S. S. Satchwell.	"
6	1855	Salisbury.	"	J. Graham Tull, Owen Hadley, A. D. McLean, Hugh Kelly.	"	J. B. Dunn.
7	1856	Raleigh.	**C. E. Johnson.**	Marcellus Whitehead, E. R. Gibson, Johnston B. Jones, O F. Manson.	"	"
8	1857	Edenton.	"	Marcellus Whitehead, O. F. Manson, H. W. Faison, E. T. Gibson.	W. G. Thomas.	"
	1858	Newbern.	**W. H. McKee.**	Edward Warren, C. W. Graham, Caleb Winslow, A. B. Pierce.	"	"

10	1859	Statesville.	**W. H. McKee.**	Jas. G. Ramsay, J. R. Mercer,	P. E. Hines, W. T. Howard.	W. G. Thomas.	C. W. Graham.
11	1860	Washington.	**N. J. Pittman.**	P. T. Henry, M. Whitehead,	R. H. Winborne, T. S. Leach.	"	"
12	1861	Morganton.	"	J. J. Summerell, G. W. Hodges,	C. T. Murphy, W. A. B. Norcom.	"	
13	1866	Raleigh.	**J. J. Summerell.**			"	"
14	1867	Tarboro.	**W. G. Thomas.**	E. Burke Haywood, W. L. Barrow,	R. H. Winborne. J. W. Jones.	S. S. Satchwell.	"
15	1868	Warrenton.	**S. S. Satchwell.**	Hugh Kelly, Chas. J. O'Hagan,	Geo. A. Foote, J. H. Baker.	Thos. F. Wood.	J. W. Jones.
16	1869	Salisbury.	**E. Burke Haywood.**	Thos. E. Wilson, C. T. Murphy,	A. B. Pierce, M. A. Locke.	"	"
17	1870	Wilmington.	**C. J. O'Hagan.**	E. A. Anderson, W. R. Sharpe,	F. N. Luckey, R. L. Payne.	"	
18	1871	Raleigh.	**Hugh Kelly.**	D. N. Patterson, J. B. Seavy,	R. C. Pearson, G. L. Kirby.	"	"
19	1872	Newbern.	**W. G. Hill.**	H. W. Faison, G. H. Macon,	R. I. Hicks, W. A. B. Norcom.	Jas. McKee.	"
20	1873	Statesville.	**M. Whitehead.**	W. T. Ennett, Chas. Duffy,	William Little, T. P. German.	"	H. T. Bahnson.

21	1874	Charlotte.	**W. A. B. Norcom.**	J. B. Jones, C. G. Cox,	R. F. Lewis, J. L. Knight.	Jas. McKee.	H. T. Bahnson.
22	1875	Wilson.	**J. W. Jones.**	Walker Debnam, Wm. Little,	J. A. Gibson, D. N. Patterson.	"	"
23	1876	Fayetteville.	**Peter E. Hines.**	Jos. H. Baker, T. D. Haigh,	G. G Smith, J. K. Hall.	"	"
24	1877	Salem.	**Geo. A. Foote.**	J. K. Hall, A. Holmes,	B. W. Robinson, A. A. Hill.	"	A. G. Carr.
25	1878	Goldsboro.	**R. L. Payne.**	E. M. Rountree, S. B. Flowers,	Richard Anderson, L. A. Stith.	L. J. Picot.	"
26	1879	Greensboro.	**Chas. Duffy, Jr.**	J. A. Gibson, Jas. McKee,	Willis Alston, A. A. Hill.	"	"
27	1880	Wilmington.	**J. F. Shaffner.**	J. K. Hall, W. R. Wilson,	W. C. McDuffie, R. F. Lewis.	"	"
28	1881	Asheville.	**R. B. Haywood.**	J. A. McRee, R. H. Speight,	W. H. Lilly, W. J. H. Bellamy.	"	"
29	1882	Concord.	**Thos. F. Wood.**	T. J. Moore, S. E. Evans,	D. J. Cain, Jno. McDonald.	"	"
30	1883	Tarboro.	**J. K. Hall.**	A. W. Knox. E. S. Foster,	J. M. Hadley, Jno. Whitehead.	"	"
31	1884	Raleigh.	**A. B. Pierce.**	F. W. Potter, R. Dillard,	G. W. Graham, G. W. Long.	"	"

32	1885	Durham.	**W. C. McDuffie.**	Jas. McKee, T. E. Anderson. W. H. Whitehead. A. G. Carr.	W. C. Murphy.	R. L. Payne, Jr.
33	1886	Newbern.	**Jos. Graham.**	H. T. Bahnson, L. J. Picot, J. L. McMillan, W. W. Faison,	J. M. Baker.	C. M. Poole.
34	1887	Charlotte.	**H. T. Bahnson.**	G. G. Smith, J. L. Nicholson, C. M. Poole, H. B. Ferguson,	"	"
35	1888	Fayetteville.	**T. D. Haigh.**	W. T. Ennett, J. A. Dunn, T. E. Anderson.	"	M. P. Perry.
36	1889	Elizabeth City.	**W. T. Ennett.**	W. J. Jones, S. W. Stevenson, G. W. Long.	"	"
37	1890	Oxford.	**G. G. Thomas.**	R. L. Payne, Jr., Richard Dillard, S. W. Booth.	J. M. Hays.	"
38	1891	Asheville.	**R. H. Lewis.**	S. W. Battle, J. L. Nicholson, W. H. Lilly.	"	"
39	1892	Wilmington.	**W. T. Cheatham.**	T. S. Burbank, J. W. Long, W. H. H. Cobb, W. D. Hilliard.	"	"
40	1893	Raleigh.	**J. W. McNeill.**	W. C. Galloway, H. H. Harris, J. M. Hadley, Thos. Hill.	R. D. Jewett.	"
41	1894	Greensboro.	**W. H. H. Cobb.**	J. A. Hodges, R. W. Tate, Willis Alston, M. H. Fletcher.	"	"
42	1895	Goldsboro.	**J. H. Tucker.**	J. H. Way, W. H. Harrell. O. McMullan, C. A. Misenheimer	"	"

43	1896	Winston-Salem.	**P. L. Payne.**	S. D. Booth, J. A. Burroughs,	J. P. Munroe, J. E. Grimsley.	R. D. Jewett.	M. P. Perry.
44	1897	Morehead City.	**P. L. Murphy.**	J. C. Walton, M. R. Adams,	A. A. Kent, B. L. Long.	"	"
45	1898	Charlotte.	**Francis Duffy.**	E. C. Register, J. B. H. Knight,	A. T. Cotten, F. H. Russell.	"	"
46	1899	Asheville.	**L. J. Picot.**	I. W. Faison, H. H. Dodson,	J. W. White, W. C. Brownson.	Geo. W. Pressly.	G. T. Sikes.

BOARD OF MEDICAL EXAMINERS OF THE STATE OF NORTH CAROLINA.

JAMES H. DICKSON, Wilmington.....1859-1866
Charles E. Johnson, Raleigh.....1859-1866
Caleb Winslow, Hertford.....1859-1866
Otis F. Manson, Townsville.....1859-1866
Wm. H. McKee, Raleigh.....1859-1866
Christopher Happoldt, Morganton.....1859-1866
J. Graham Tull, Newbern.....1859-1866
SAMUEL T. IREDELL, Secretary.....1859-1866
N. J. PITTMAN, Tarboro.....1866-1872
E. Burke Haywood, Raleigh.....1866-1872
R. H. Winborne, Edenton.....1866-1872
S. S. Satchwell, Rocky Point.....1866-1872
J. J. Summerell, Salisbury.....1866-1872
R. B. Haywood, Raleigh.....1866-1872
M. Whitehead, Salisbury.....1866-1868
J. F. Shaffner, Salem.....1868-1872
WM. LITTLE, Secretary.....1866-1872
CHAS. J. O'HAGAN, Greenville.....1872-1878
W. A. B. Norcom, Edenton.....1872-1878
C. Tate Murphy.....1872-1878
Geo. A. Foote, Warrenton.....1872-1878
J. W. Jones, Tarboro.....1872-1878
R. L. Payne, Lexington.....1872-1878
CHAS. DUFFY, JR., Newbern.....1872-1878
P. E. HINES, Raleigh.....1878-1884
T. D. Haigh, Fayetteville.....1878-1884
R. I. Hicks, Williamsboro.....1878-1880
Geo. L. Kirby, Goldsboro.....1878-1884
Thos. F. Wood, Wilmington.....1878-1884
Jos. Graham, Charlotte.....1878-1884
H. T. BAHNSON, Salem.....1878-1884
R. H. Lewis, Raleigh.....1880-1884
WM. R. WOOD, Scotland Neck.....1884-1890
A. W. Knox, Raleigh.....1884-1890
Francis Duffy, Newbern.....1884-1890
P. L. Murphy, Morganton.....1884-1890

BOARD OF MEDICAL EXAMINERS OF THE STATE OF NORTH CAROLINA.

Willis Alston, Littleton.....1884-1890
W. J. H. BELLAMY, Wilmington.....1884-1890
J. A. Reagan, Weaverville.....1884-1890
R. L. Payne, Jr., Lexington.....1890-1892
Geo. W. Purefoy, Asheville.....1890-1892
Geo. G. Thomas, Wilmington.....1890-1894
Robt. S. Young, Concord.....1890-1894
Geo. W. Long, Graham.....1890-1896
W. H. WHITEHEAD, Rocky Mount.....1890-1896
L. J. PICOT, Littleton.....1890-1896
JULIAN M. BAKER, Tarboro.....1892-1898
H. B. WEAVER, Asheville.....1892-1898
T. S. Burbank, Wilmington.....1894-1900
J. M. Hays,* Greensboro.....1894-1897
D. T. Tayloe, Washington.....1896-1902
R. H. Whitehead, Chapel Hill.....1896-1902
THOS. E. ANDERSON, Statesville.....1996-1902
Kemp P. Battle, Raleigh.....1897-1900
W. H. H. Cobb, Goldsboro.....1898 1900
J. Howell Way, Waynesville.....1898-1902
Albert Anderson, Wilson.....1898-1902
E. C. Register, Charlotte.....1898-1902

*Service on Board terminated by death in May, 1897.

NOTE—The names of members who served as President appear in CAPS ; of those who served as Secretary in SMALL CAPS.

OFFICERS AND COMMITTEES.

Session 1899.

PRESIDENT.

L. J. PICOT, M. D., Littleton.

VICE-PRESIDENTS.

I. W. FAISON, M. D., Charlotte.
H. H. DODSON, M. D., Milton.
J. W. WHITE, M. D., Wilkesboro.
W. C. BROWNSON, M. D., Asheville.

SECRETARY.

GEO. W. PRESSLY, M. D., Charlotte.

TREASURER.

G. T. SIKES, M. D., Grissom.

ORATOR.

H. S. LOTT, M. D., Salem.

ESSAYIST.

C. L. MINOR, M. D., Asheville.

LEADER OF DEBATE.

J. P. MUNROE, M. D., Davidson.

BOARD OF CENSORS.

W. O. McDOWELL, M. D., Scotland Neck.
H. H. HARRIS, M. D., Wake Forest.
J. H. TUCKER, M. D., Henderson.

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J. C. MONTGOMERY, M. D., Charlotte.
R. D. JEWETT, M. D., Winston.
H. T. BAHNSON, M. D., Salem.

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R. H. LEWIS, M. D., Raleigh.
G. T. SIKES, M. D., Grissom.
ABNER ALEXANDER, M. D., Columbia.
JAMES McKEE, M. D., Raleigh.
H. A. ROYSTER, M. D., Raleigh.

OBITUARY COMMITTEE.

GEO. W. LONG, M. D., Graham.
J. A. REAGAN, M. D., Weaversville.
K. P. BATTLE, M. D. Raleigh.

MINUTES

OF THE

FORTY-SIXTH ANNUAL MEETING

OF THE

Medical Society of the State of North Carolina.

FIRST DAY.

ASHEVILLE, N. C.

Tuesday, 10 a. m., May 30, 1899.

The forty-sixth annual meeting of the Medical Society of the State of North Carolina was convened in the ball room of the Battery Park Hotel, Asheville, N. C., President L. J. Picot in the chair.

The Society was called to order by Dr. M. H. Fletcher, of Asheville, chairman of the local committee of arrangements.

The session was opened with prayer by Rev. C. W. Byrd, D. D., of Central Methodist Church, as follows :

Almighty God, our Heavenly Father, we thank Thee for Thy protecting care and loving providences that have been over us during the duties and toils and temptations of another year, that Thy grace has been sufficient for us, that Thy loving hand has lead us in the way of life and love, and permitted us to gather here in this annual session to discharge the duties that devolve upon us now. We pray Thee for forgiveness for our failures in discharge of any of the duties in the ordinary routine of work. We pray that we may be strengthened for all the duties of this occasion, and that we may be the better equipped by this occasion for the duties of life that lie out before us. Help us to

realize the responsibilities of the positions we occupy and the relations that we sustain to society. We are doubly conscious, our Heavenly Father, of the large field of usefulness that lies before us. We are doubly conscious of the great weight of responsibility that rests upon us as men to whom the most sacred interests of society are committed, and who have the privilege of entering into the trials and difficulties and secrets of family life as no other men have. We pray Thee to give us strength for these responsibilities, and to give us the wisdom needful for us, that we may be faithful, that we may be true men measuring up to the standard of obligation that God has set for us, and of following as far as we may be able in the footsteps of the Great Physician who has taught us how to live blameless lives, and has provided for us the grace to follow in His footsteps. We thank Thee, our Heavenly Father, for all the privileges that Thou dost grant us. We praise Thee for opportunities of helpfulness that come to us. Always give us the right word of sympathy and helpfulness as we enter the home of the people to discharge the duties of professional life, and help us to be faithful to our calling, honorable men, true to the code which is set for us, and true to the God that has called us to this office and ministry, and grant, Father, that Thy peace and strength may constantly abide with us and help and guide us. Hear our prayer this morning. Give us a profitable session. May great good be accomplished for the cause we represent in this State. May Thy guiding hand be in all the exercises of this occasion. May all the duties we undertake hereafter be successful, and finally, when life's toils are done, may we have an opportunity to gather in that better kingdom where we shall receive the reward of our sacrifices here, and praise for work well done; through Jesus Christ, Amen.

Hon. Locke Craig then delivered the following

Address of Welcome.

Mr. Chairman, Gentlemen of the Medical Society, Ladies and Gentlemen:

When I was asked to deliver this address of welcome Dr. McBrayer presented it to me in this way: Did I think that I was afraid to stand before four hundred doctors, and if I felt then as I feel now I would have said yes, and would not have been here.

The most cordial hospitality that I ever received was in a little pine cabin home. It nestled away up under overhanging cliffs, beneath the shadows of the towers and the domes of the Black Mountains. The address of welcome was in these words: "We are poor, but we are friendly." There was indeed a dearth of luxury, but there was a great abundance of good will, more refreshing even than the sparkling waters of the stream that poured down fresh from the granite of the eternal hills. It is in this same spirit of free, cordial, simple mountain hospitality that I, in the name of the people of our mountain city, greet the medical fraternity of North Carolina, and tell you that the gates of this city are wide open to you, that the city is yours, and the fulness thereof. The doctor is always welcome—that is, in the hour of necessity. We never believe in doctors until we need one, and when we need one we are like the man in Texas who wanted a pistol, we need him bad, and we want him now. When the strong arm that is the stay and protection of the family is stricken down by affliction in the dark hours, "when the dying night lamp flickers and the shadows rise and fall," we welcome the one who can give a ray of hope that this will not be the light of the stern last morning. When the mother with streaming hair leans over the dying infant whose parched cracked lips only her tears now moisten, she welcomes the one who can stop the pain of the last death cry of the little one in the night. Some one has said that the physician who first discovered the efficacy of anaesthetics conferred a greater service on humanity than all the authors and teachers of moral dogmas. This is doubtless an extravagant statement, but it is but just to say that there is no calling, no profession, nobler, higher, grander, with a more divine mission than that which has for its ultimate purpose the mastery of the science of the human body, and the conquest of diseases and sufferings of our kind. While Alexander the Great was conquering the world, while Cæsar was pushing out the borders of the Republic and crushing his enemies with his legions, while Napoleon was terrifying Europe with a conflagration of falling cities and the tramp of embattled hosts, Hippocrates and Galena and Jenner and Harvey and their fellows, unnoticed, unknown, in the obscure laboratory, sometimes in the prison of persecution were battling with courage and a faith that never faltered, against the great enemy of mankind, and doing a work that will always bless all

the children of all generations. There is one thing about the doctor, too—he never makes any mistakes, for dead men tell no tales. But there is this consolation, that the doctor can learn in the school of experience. Mind you, I do not say it is the only school in which he can learn, but he does learn in the school of experience. They can truthfully say, with the poet:

> We hold it truth, with him who sings
> To one clear harp in divers tones,
> That we may rise on stepping stones,
> Of our dead *patients* to higher things.

I have read that it is the contention of some who have studied the records written upon the rocks that there are evidences on this planet of a race of men who have been exterminated by an incurable disease, and we know that the smallpox would have devastated Europe had it not been for the discovery of Dr. Jenner. There is now presented to the medical profession a problem, and its solution is demanded. There is a little germ, they tell me, and I believe that you call him bacillus tuberculosis. He is more invincible than an army with banners, he is the greatest enemy that the human family has encountered. He destroys not in the fierce fiery conflict, he grapples not his victim in the fiery agonies of death, but slowly he parades him before the eyes of loved ones, and with a cruelty as relentless as the gates of hell gnaws away his vitals. Your profession, with all its learning and ability, stands helpless in his presence, powerless as the poor deluded priest who walks out in front of the naked army of Filipinos and implores his God to bring consternation on the ranks of the monsters who are killing his people with fire and leaden hail. It is the great enemy of human kind, it is the great problem for the solution of modern medicine, and I believe that the man now lives, an intellectual Hercules, who shall destroy this myriad-headed hydra, who will rescue and bless our race. His name will eclipse that of Harvey and Jenner.

However this may be, again I say, in the name of all the people of Asheville, both laymen and belonging to the profession, I hope your deliberations may be pleasant and profitable, that your Society may continue, as it always has been, learned and progressive, the pride of our people and an ornament to our State.

Response to Address of Welcome.

By DR. BENJ. K. HAYS, of Oxford, N. C.

To me, Mr. President, has been assigned the pleasing, but extremely difficult task of making suitable acknowledgment of this most cordial reception. Fortunately it is not expected of an unknown country doctor to echo in strains harmonious the eloquence of a lawyer and statesman whose name is a household word throughout North Carolina.

Had it been my duty to prepare an address for this occasion and had the speaker to whom we have just listened with so much pleasure, been unexpectedly called upon to make reply, even then the results would have been most unequal. But sir, when it is required of me to make an immediate reply to so finished an oration, and to express the gratitude of this body for such words of welcome, I feel myself wholly unequal to the task.

And yet, Mr. President, this body of physicians deems it a peculiar privilege to meet in this city, and while its many attractions are known throughout the civilized world, I wish to say that its beautiful scenery, and pure air, and magnificent hotels are less to us than the reception which has been accorded us here to-day.

I shall not undertake to enumerate the charms of Asheville; they are in evidence and speak for themselves, and we must read he history of a dozen nations to learn of the blessings enjoyed here by the inhabitants of a single town. The Athenians were a people of culture, but could not resist the armies of Philip nor the Romans. The Roman soldier conquered the world, but could not expel from his city the dread malaria that came with each returning summer claiming its victims by thousands. The arid regions of Africa were free from malaria, but who would build his home in a desert? The mountains of Switzerland were truly beautiful, but the Government of that country was unsettled, and the mountains infested with robbers.

But here, Mr. President, we find all the beauties of Switzerland; we find a climate more healthful than the arid regions of Africa, a soil more fertile than the banks of the Nile. We find a people whose culture is equal to that of the Athenians. We find the largest library in the State, and schools which are equal

to the best. On every side is manifest a love for the beautiful and for the artistic. The most casual observer finds evidence that this people is not disturbed by intestinal discord, for yonder magnificent temples dedicated to the worship of Him who hung on Calvary are monuments of perpetual peace. Nor is there fear of a foreign foe, for it is known to all that the life and liberty and property of the humblest citizen are protected by a strong right arm before which the combined hosts of all the Cæsar's would be as chaff before a mighty wind.

Here too, Mr. President, in our own profession are men whose ability is recognized in two continents. When the future historian of medicine shall tell how that dread disease, tuberculosis, was blotted from the face of the earth, it will be found that the labor and investigations of men now seated within the sound of my voice played no small part in that Herculean undertaking.

But sir, the most crucial test that can be applied to a people is the position occupied by its womanhood. By savage people, woman is treated as a slave ; a little higher in the social scale she is still a servant ; among people of civilization she is regarded as man's equal, while here in Asheville she reigns a queen.

Would you know the fairest woman
That has lived within the North State ?
Go you then unto the mountains,
View the lovely Belle of Asheville,
In her form and in her figure,
Standing like a Grecian statue—
In her brow of speaking grandeur,
In her eye of liquid azure,
In her lips of rose and ruby
In her neck and arm majestic,
In her rich and fair complexion
She combines as many graces,
She combines as much of beauty
As to any earthly creature
By the gods was ever granted.
In his heart of hearts blind Homer
Never pictured fairer woman.
In his sweetest strain did Horace
Ne'er ascribe to Roman beauty
More that forms a perfect beauty
More that forms majestic beauty,
More that forms a perfect woman.

Such, Mr. President, is the Queen City of North Carolina as she is to-day, arranged in her robes of verdue, the mountains forming her chair of State, while the French Broad plays laughingly about her feet.

Had the little strip of land on which Asheville is located been cut from North Carolina one hundred years ago, it would have been counted no great loss; and yet, sir, this strip of land has produced some half dozen men, each of whom has been instrumental in shaping the laws, the institutions, the character, the destiny of the State.

Need I tell you of David L. Swain, who left the governors chair to become President of the University, and who, laboring in that capacity for the third of a century made that institution the pride of the State and the admiration of the South?

Need I tell you of Thomas L. Clingman, soldier, statesman, jurist, scientist, and scholar?

Need I tell you of Augustus W. Merrimon, whose energy, integrity and natural ability won for him eminence as a statesman, and placed him in the very first rank as a jurist?

Need I tell you of him whose firm hand and mighty heart and mightier soul guided and directed our people in the hour of greatest extremity? Who obtained clothing for the naked soldiers, release for those in prison, and in a thousand ways so cared for the interests of his people as to win for himself the name of the great war Governor of the South? Need I tell you how he alone was able to redeem the State from a condition worse than war itself, and restore the light after fifteen years of night and gloom; and how later, in the Senatorial Chamber in Washington, at a time when it was difficult for a Southerner to obtain recognition, he by his heroic defence of North Carolina and the South, won the admiration and applause of the very men whom he had opposed in battle? When the prejudice of party and hatred of sectionalism threatened to trample North Carolina into the dust,

> "His was the thunder—his the avenging rod,
> The wrath—the delegated voice of God,
> Which shook the nations through his lips, and blazed,
> Till vanquished senates trembled as they praised."

Mr. President, these things are matters of history and there is no occasion for me to dwell upon them here. I simply refer to

them in passing, that we in our admiration for the many beauties and attractions which surround us may not, in the intoxication of the present hour be unmindful that Asheville has enjoyed a glorious past.

The roll was called.

The President then read his message.

On motion of Dr. H. B. Weaver, of Asheville, seconded by Dr. C. J. O'Hagan, of Greenville, a committee was appointed to take charge of the President's Message and report on the several recommendations contained therein.

Dr. M. H. Fletcher, of Asheville, Dr. H. A. Royster, of Raleigh, Dr. C. M. Poole, of Craven, were appointed a Committee on Credentials.

Dr. A. G. Carr, of Durham, Dr. R. H. Speight, of Wrendale, Dr. T. S. McMullan, of Hertford, were appointed a Committee on Finance.

Dr. H. A. Royster, of Raleigh, made a motion to extend the courtesy of the floor to visiting members of the profession, which was carried.

The President called up the section on Practice of Medicine, and the chairman, Dr. Benj. K. Hays, of Oxford, made his report on "The Continued Fevers of North Carolina."

Dr. Hays' paper was discussed by Drs. John Hey Williams, J. A. Reagan, H. A. Royster, S. D. Booth and C. J. O'Hagan.

On motion the paper was referred to the Committee on Publication.

The Committee on Credentials made a partial report.

Drs. E. C. Levy and John P. Davidson presented credentials as delegates from the Medical Society of Virginia.

Dr. J. M. Baker, of Tarboro, announced that Miss Minerva Pittman, the daughter of the late Dr. N. J. Pittman, for many years an honored member of this Society, desired to give a prize of one hundred dollars in cash to be competed for annually by members of the Society under such rules as it should see proper to establish. She desires to impose only one condition, that the award should be made for original work or investigation upon any subject pertaining to medicine, leaving all other conditions to the pleasure of the Society. Miss Pittman hoped the Society

would see fit to accept this offer, so that the award might be made at this meeting.

It was moved that the offer be accepted. Dr. Long offered an amendment that a committee of three be appointed to have this matter in charge, and said that it was fitting that the Society should recognize this generous offer, and very proper that the name of Dr. Pittman should be recalled at the annual meetings in this way ; that it was an inspiration to the young men and a pleasure to the old men to recall his useful life and valuable services.

Dr. O'Hagan said that he had had the honor of knowing Dr. Pittman well and intimately ; that what struck him in the offer was the filial piety of the young lady, and the interest she took in the advancement of the medical profession of which her father was such a distinguished member. Motion seconded and carried.

The reading of the paper on "Clinical History and Prognosis of Continued Fever as Seen in the Mountain Section of North Carolina," by Dr. J. Howell Way, was postponed on account of the unavoidable absence of Dr. Way.

Dr. W. L. Robinson, of Danville, being also unavoidably detained, the reading of his paper on "Treatment of Typhoid Fever," was postponed.

On motion the Society adjourned until 3:30 p. m.

Afternoon Session.

The Society was called to order at 3:30 p. m., by the President.

The Credential Committee made a partial report.

The report of the section on Practice of Medicine was continued by a paper on "Typhoid Fever as Met With in Fayetteville and Surrounding Country," read by Dr. J. F. Highsmith, of Fayetteville. Discussed by Dr. O'Hagan.

On motion, Dr. Highsmith's paper was referred to the committee on publication.

A paper on "Chronic Gastro-Intestinal Catarrh," was read by Dr. Wm. J. McAnally, of High Point. Referred to the committee on publications.

Dr. E. B. Glenn, of Asheville, read a paper on "Study of the Bacteriology of Specific Urethritis." Discussed by Prof. E. C. Levy, of Richmond, Va. Paper was referred to the committee on publication.

Dr. Paul Pacquin, of Asheville, discussed "Biology and Pathology of Mixed Infection in Tuberculosis."

The following committee was appointed on the Pittman prize: Julian M. Baker, M. D., Geo. W. Long, M. D., J. P. Munroe, M. D.

The following committee was appointed to report on the President's address: Drs. C. J. O'Hagan, R. H. Lewis, Geo. Gillett Thomas.

It was moved and seconded that the stenographer reporting last year's meeting be paid a balance of $14.65. Carried.

The Treasurer stated that, in the regular routine of his work, he had sent, among other bills, one to Dr. R. W. Mills, to which he had received the following reply:

TROUTMANS, N. C., August 2, '98.

DEAR DOCTOR:—Yours of recent date is to hand, and in reply will say my condition is such, from age and infirmities, also straitened circumstances, as stated to your predecessor, I am totally unable to pay any dues to the treasurer of the State Medical Society. I hope you will not construe this as any want of generosity, but simply the want of ability. I, as many other medical practitioners, have large accounts due me, but unable to collect any, hence with no income leaves me in no condition to pay any kind of assessments as taxes. Hoping this might prove satisfactory—I am near seventy-five years of age, eye-sight almost gone.

Fraternally yours,

R. W. MILLS, M. D.

It was unanimously declared that Dr. Mills' dues be remitted, and that he be permitted to remain a member of the State Medical Society during his lifetime without further payment of dues.

The President read the following letter:

STATE OF NORTH CAROLINA,
INSURANCE DEPARTMENT,
Raleigh, N. C., May 15, '99.

Dr. L. J. Picot, President, Littleton, N. C.

MY DEAR DOCTOR:—I see that your society is to meet in Asheville about the 1st of June, and I take the liberty of enclosing you under separate cover, a copy of our new Insurance Laws,

and of calling your attention to section 58 of the same. You will find upon examination of it, that no life insurance company can now issue a policy in this State without an examination by the registered medical practitioner. This, I take it, will be of some interest to you and your profession, and I would be glad to have you call the attention of your Society to the same in your annual address, saying that I have called it to your attention, and urge them to lend their aid in seeing that it is carried out. Not only as a matter of personal interest to them individually, but as one that will be of great advantage to the people of the State, and the insurance interest. Very truly yours,

J. R. YOUNG,
Insurance Commissioner.

On motion the Society adjourned.

SECOND DAY—MORNING SESSION.

The Society was called to order at 10 a. m. by the President.

The following Committee on Nominations was appointed: Drs. H. B. Weaver, H. H. Harris, J. M. Baker, B. F. Halsey, George L. Kirby.

The Finance Committee made their report, which was received and adopted.

Dr. C. S. Mangum, of Chapel Hill, Chairman of the Section of Materia Medica and Therapeutics presented his report on "Progress in Serum Therapy," discussed by Drs. Weaver, Pacquin and Levy. Referred to the Committee. The Obituary Committee made their report which was adopted.

The report of the Legislative Committee was then made by the Chairman, Dr. R. H. Lewis, of Raleigh.

The Board of Medical Examiners then made their report through their Secretary, Dr. Thos. E. Anderson, of Statesville.

CONJOINT MEETING.

The hour having arrived for the conjoint meeting with the North Carolina State Board of Health, Dr. Geo. Gillet Thomas of Wilmington, President of the Board, called the conjoint meeting to order. The President made his address.

The Secretary, Dr. Richard H. Lewis of Raleigh, then made his report.

Dr. McMullan, of Hertford, returned thanks on the part of the border counties for sending into their midst during the recent epidemic such an able sub-committee as Drs. Thomas and O'Hagan, who had aroused them to the resistance of smallpox.

Dr. H. W. Lewis, of Jackson, superintendent of health of Northampton, made a speech in the same vein, and said the hands of the Board of Health should be upheld in the matter of vaccination. He almost felt it in his heart to wish that some of these people should die of the disease in order to make them realize the danger. He had been threatened with guns in his attempt to fight the disease, and he favored the increasing of the appropriation and the making of the office of State Smallpox Inspector permanent.

On motion of Dr. Picot, a vote of thanks was tendered Dr. Lewis, not only for the excellent report, but also for his work as Chairman of the Committee on Legislation. Dr. Carr moved that the name of Dr. H. F. Long be included in this vote of thanks for his very efficient work as State Inspector. Unanimously carried.

Dr. H. F. Long of Statesville, then made his report as State Smallpox Inspector. The report was received.

The President announced that for the ensuing two years the following appointments had been made for the State Board of Health :

Appointments by the Governor : Chas. J. O'Hagan, M. D., J. L. Nicholson, M. D., Albert Anderson, M. D., Richard H. Lewis, M. D., and Col. A. W. Shaffer, Sanitary Engineer.

The ballot of the Society was then cast for the following four to serve on the Board : S. W. Battle, George G. Thomas, Henry W. Lewis and H. H. Dodson.

On motion, the session was then adjourned.

Second Day—Afternoon Session.

The Society was called to order at 2:30 p. m., by the President. The committee on the President's Address made their report.

Referring to the report of the Committee in regard to the formation of Medical Societies in North Carolina, Dr. Cobb said: The Tri-State Medical Society was intended for the upbuilding and uplifting of the profession and for the elevation of suffering

mankind. It was not the intention of any of the members who composed that Society to injure in any way the Societies of the three States that compose it. One of the requisites of the membership is that the applicant shall be a member of the Society of his State, and why should the State of North Carolina so degrade itself as to say that one of its members shall not join a Society outside of the State? While we have specialists and general practitioners, I am sorry to say that some of them are afraid to meet open competition of members from other States. I think that is very uncalled for, to say the least of it.

Dr. Booth: I did not hear all of the report of that Committee, which I regret very deeply, but I move that the report of the Committee be taken up and passed upon seriatum. Seconded and on vote rejected.

It was moved and seconded that the report be accepted as presented by the Committee. Carried.

Nominations for officers for the ensuing year being now in order, Dr. O'Hagan nominated Dr. Geo. W. Long for President in the following words:

In accordance with a rule that I have followed for many years, the results of which have been so satisfactory that I deem that rule the best one, and that rule is pushing the young men to the front. Therefore, in accordance with that policy I rise to propose the name of Dr. Geo. W. Long, of Graham. He has been a working member of this Society for many years. He has discharged satisfactorily every duty imposed upon him, and I am quite sure that he will justify the confidence I have in him. I beg leave to put in nomination George W. Long.

Dr. Thomas, in seconding this nomination, said: It gives me great pleasure to second this nomination. A long and very intimate acquaintance with Dr. Long encourages me to say in his favor all that Dr. O'Hagan has said, and as much more as the greatest imagination can picture.

Dr. Lewis moved that the nominations be closed, the rules suspended, and the vote of the society be cast for Dr. George W. Long, of Alamance, for President. Unanimously adopted.

Nominations for Vice-President being now in order, Dr. Parrot nominated Dr. McMullan for first vice-president, but on request of Dr. McMullan his name was withdrawn.

Dr. G. T. Sikes then nominated for first vice-president Dr. C. M. Poole. Seconded.

Dr. Williams was nominated for second vice-president by Dr. Speight. Seconded.

Dr. James M. Parrot of Kinston was nominated for third vice-president. Seconded.

For fourth vice-president Dr. W. D. Hilliard, of Asheville, was nominated by Dr. Baker. Seconded.

All unanimously elected.

Dr. Geo. W. Pressly, of Charlotte, the present Secretary, was nominated for Secretary, and the Treasurer instructed to cast the vote of the Society for Dr. Pressly.

Dr. G. T. Sikes, the present Treasurer, was nominated to succeed himself, and the Secretary instructed to cast the vote of the Society for Dr. Sikes.

Dr. Long, the incoming president, was presented with a bouquet of flowers from the citizens and physicians of Asheville, to which he responded in a speech of thanks.

It being moved that the place of meeting for 1900 be selected, the unanimous vote of the Society was cast for Tarboro.

The time was left in the hands of the local committee of arrangements.

On motion the Society adjourned.

Third Day—Morning Session.

Thursday, 10 a. m., June 1st, 1899.

The Society was called to order by the President.

Dr. J. M. Baker, Chairman of the Committee on the Pittman prize, having requested that his name be withdrawn on account of his connection with the offering of the prize, Dr. Richard H. Whitehead, of Chapel Hill, was appointed in his place.

The discussion on Dr. McKenzie's paper having been postponed on yesterday, it was concluded by Dr. McKenzie.

The Secretary read a letter from Dr. W. T. Cheatham, of Henderson, regretting his inability to be present, and wishing the Society a profitable session.

Also from Dr. Joseph Price, of Philadelphia, who was to have read a paper before the Society, but was unable to attend.

Dr. Goode Cheatham, of Henderson, Chairman of Section on

Anatomy and Surgery, presented a paper on "Asepsis and Antisepsis in Surgery," which on motion was referred to the Committee on Publication.

Dr. F. T. Meriwether, of Asheville, presented a paper on "Some Remarks upon Coley's Treatment of Malignant Growths." On motion this paper was referred to the Committee on Publication."

"An Interesting Case of Renal Calculus," presented by Dr. M. Bolton, of Rich Square, was on motion referred to the Committee on Publication.

Dr. R. E. Zachary, of Wilmington, presented a paper on "Gunshot Wounds with Report of Case," which on motion was referred to the Committee on Publication.

The Committee on Nominations make their report which was adopted.

On motion, the Committee on Finance was discharged for this term.

Dr. McMullan then moved to re-consider that part of the Finance Committee's report reducing the salary of the Secretary and Treasurer, and that their salaries be placed at the former figures of $125 for the Secretary and $100 for the Treasurer, as the receipts for this session have been in excess of what was expected by the Finance Committee. Seconded and carried unanimously.

The following resolution is offered by Dr. C. M. Poole:

Resolved, That the transactions of the Society be hereafter bound in cloth, price not to exceed 50 cents per copy. Seconded and adopted.

Dr. H. B. Weaver, of Asheville, said that a very important paper, and one which pertains to the living issues of the day was hurriedly discussed yesterday. It was on Serum-Therapy by Dr. Mangum. I have here some notes which I think will elicit some discussion, and which I would be glad to read.

(Dr. Weaver's notes will be found in the discussion of Dr. Mangum's paper.)

Dr. J. E. S. Davidson read a paper on "Meningitis," which was referred to the Committee on Publication.

Dr. R. E. Zachary then read a paper on "Pernicious Malarial Fever," which was referred to the Committee on Publication.

Society adjourned.

Third Day—Afternoon.

Thursday, 3:30 p. m. June 1st.

The President announced that Dr. A. A. Kent is appointed a member of the Committee on the Pittman Prize.

The papers of Dr. E. A. Moye, of Greenville, on "Aconite Poisoning, its Diagnosis and Treatment, with Report of a Case," and Dr. E. B. Goelet, of Saluda, on "Electricity as an Aid to the Physician and Surgeon," are by motion referred to the Committee on Publication without being read, the authors having been compelled to leave.

Dr. J. W. Long, of Salisbury, presented a paper on "Ectopic Pregnancy." Discussed by Drs. H. A. Royster and H. S. Lott. On motion it was referred to the Committee on Publication.

Dr. Charles L. Pearson, of Asheville, presented a "Report of a Case of Carcinoma of the Lung with Tuberculosis." On motion the paper was referred to the Committee on Publication.

W. B. Pritchard, M. D., of New York City, gave a "Report of a Case of Brain Tumor Relieved Symptomatically by an Exploratory Operation Upon the Skull."

On motion, the paper was referred to the Committee on Publication.

The papers of Drs. D. A. Staunton and Thos. F. Costner were referred to the committee on publication.

On motion, the paper of Dr. Robinson, of Danville, on "Treatment of Typhoid Fever" was referred to the Committee on Publication, the author being unable to be present and read it.

The Committee on the Pittman Prize reported.

The Society then proceeded to the installation of officers. Dr. Lewis and Dr. Kent were appointed to escort the newly elected President to the chair. After being introduced, he said:

Gentlemen of the Medical Society of North Carolina:

I am deeply touched and impressed at the singular unanimity with which you have called me to preside over your deliberations. I thank you very much for this high mark of respect. This is a responsible position, and I promise you to use my utmost endeavors to discharge the duties of the place in the best interests of the profession. To aid me in that work I ask your earnest co-operation. I thank you, gentlemen.

The President appointed the following chairman of sections:

Pathology and Microscopy—Dr. Carl V. Reynolds, Asheville.

Anatomy and Surgery—Dr. Arthur Pendleton, Warrenton.

Medical Jurisprudence and State Medicine—Dr. John McCampbell, Morganton.

Obstetrics—Dr. E. R. Russell, Hickory.

Gynecology—Dr. B. Ray Browning, Littleton.

Practice of Medicine—Dr. W. E. Spencer, Yanceyville.

Materia Medica and Therapeutics.—Dr. D. J. Hill, Lexington.

Chemistry and Physiology.—Dr. L. P. Aaron, of Mt. Olive.

Pediatrics.—Dr. J. R. Irwin, Charlotte.

Railway Surgery.—Dr. W. D. Hilliard, Asheville.

On motion by Dr. Lewis, the thanks of the Society were extended to the people of Asheville and the Buncombe County Medical Society as well as the Oakland Heights Sanitorium, for the kind attention and hospitality shown them. Also to the railway company for reduction of rates.

On motion, the Society then adjourned to meet in Tarboro, the date to be fixed later.

GEO. W. PRESSLY, M. D.,
Secretary.

L. J. PICOT, M. D.,
President.

PRESIDENT'S ADDRESS.

Gentlemen of the Medical Society of North Carolina :

I CONGRATULATE you upon this your third meeting in this delightful city of the mountains where there is so much to charm the eye and elevate the mind. In this inspiring clime your faculties will doubtless appear at their very best. Since the abandonment on the part of your presiding officers of the old time custom of delivering an address upon some medical subject, my immediate predecessors in office have adopted a course of discussing questions of passing interest of importance for the better government of your body. I can see no reason why I should not follow this well beaten track. Much ground has been gone over, and in some instances we have found it expedient to retrace our steps. I hope now that we have reached a position sufficiently high to almost adopt the motto of "Nulla vestigia retrorsum." I heartily congratulate you upon the most distinctive and by far real advancement you have had in many years. It is a complete attainment of the wishes and purposes of your most advanced thinkers for years. Many eloquent pleas have been made for a higher standard of medical education in this State. A number of plans to reach this end have been discussed and proposed by your former Presidents. To their constant repetition of, and urging this question, we owe its happy solution at last. "The Gordion Knot" has been severed at one stroke by Legislative enactment. The passing of the act to require applicants for license to practice medicine in this State to exhibit a diploma from some medical college having clinical facilities, and a minimum curriculum for three full years of study is a wise one, and I feel sure will meet with your unqualified endorsement. Unstinted praise is due to the efforts and wisdom of your committee on medical legislation, and particularly to its chairman in securing the passage of this law. It was a fortunate circumstance that this society had a strong representation in the Legislature. It is a source of gratification

that in recent years every Legislature contains some of your foremost members who always guard your interest with watchful care. This law should mark a new era in the history of your progress. From this time forward the records of the Board of the Medical Examiners will show a greatly decreased percentage in its rejections and re-examinations. The duties of the Examining Board, instead of being as heretofore trying and burdensome in the extreme, will be light and pleasant. The probability of any applicant for license being rejected as many as five or six times is hardly to be considered. So that all future Boards are to be felicitated upon the passage of this measure. All this has been accomplished by the sentiment of united profession. At the first Inter-State conference of the Examining Board held in Washington two years since, Dr. Rauch, President, of the Illinois Examining Board, severely criticized the medical law of North Carolina, in that it admitted to examination all classes of applicants without regard for educational qualifications. The lamented and beloved Dr. Thos. S. Wood joined with me in defence of our law, while we were painfully aware of its defects. To such constant and zealous workers as Dr. Wood do we owe the present comparative efficiency of our medical law, after which in the main other States have been modeled. You have been the pioneers of medical legislation in this country ; and if we cherish this spirit of progress, as no doubt you will, you will always maintain a position with the foremost medical societies of this country. From your constant education of the people, you have at last secured their moral support, and they are looking to you to-day to devise methods to stay or prevent the march of disease. I can very well remember, and so can many of you, when it was thought by many of the laity that the Medical Society was only organized to maintain a standard of high charges for services, and expressed great surprise when told that no such thing had ever been discussed in a meeting. Now, whenever there is a medical convention, the newspapers are eagerly read to learn what the doctors are doing to prevent or cure disease. We are often asked after a return from our conventions, after the usual inquiries as to the personel of the new officers, if anything has been found to cure cancer or consumption. They read and ask about germs, too.

But a few weeks since a distinguished U. S. Senator gravely

informed me that pneumonia was, beyond controversy, caused by germs, and that turpentine would certainly kill the germs and cure pneumonia. I promptly excused him for suggesting turpentine on the ground of State pride and loyalty to a North Carolina product. This is in strong contrast to the preacher, who a few days after, asked if I believed vaccination would prevent smallpox. It is probable that he had been reading the "London Anti-Vaccination Reports."

The utility of the Board of Health is recognized by the people of the State. The recent bi-ennial report is a credit to its officers, and compares favorably with the reports of any other State.

No water company can now set itself up in business in any town in this State without proper consultation with, and advice from competent medical authority. It has come to be known that no one can jeopardize the health of another or of a community without let or hindrance. In any sudden outbreak of disease in the country, town or city, the help of our health officers is at once invoked to abate it. An apt illustration of this is furnished by the recent development of smallpox cases in various sections of the State, and if any proofs are needed to show the efficiency of the work of the State Board of Health and its Auxiliary County Boards, they are ample. The people now look upon these boards of health as matters of necessity, and appeal to their officers for help in the hour of danger. The State Board of Health within the last year has held conferences with the people upon interests pertaining to the public health in different towns in the State. These conferences should be encouraged, and held oftener, as they have proven useful object lessons in helping to educate the people to a knowledge of hygienic laws. They have begotten a confidence on the part of the people in all matters pertaining to the laws of health.

It has taken many years' patient zeal and work to bring about these relations between the people and the profession. Many of those who worked for years to accomplish this end have gone to their last reward, leaving us to continuously build upon the foundations so wisely laid.

I am rejoiced to say, in your membership, there are young men full of ambition, and thoroughly qualified by reason of professional attainments to carry on this work. Let us encourage the ambitions and hopes of these young members and teach

them to know the Society will reward their allegiance by bestowing on them their full share of its honors.

Since our last meeting there have been two events, which in their nature, as affecting the interest of this Society, demand our attention. I refer to the organization and convention of the Seaboard and Tri-State Medical Societies—the former consisting of a membership of the doctors of the Tide Water Section of Virginia and North Carolina and the latter of members of the Virginia, North and South Carolina Medical Societies. These matters you will have to consider, and decide what your attitude and relations shall be toward these bodies. To a certain extent they are offshoots from this society. The question that confronts you mainly is, will they, and in what way, affect your interest and growth? This question seems to my mind an easy one to answer. I am fully satisfied that they will seriously injure this Society, and the reasons are plain enough.

They must, in a measure, depend upon the profession for their membership and support. This, our Society, is largely made up of country doctors. The average doctor cannot pull away from his business more than once in any year to attend a society meeting, even if he could afford the expense. If he belonged to all of these societies, he has a divided interest, and the chances are strong that he would adhere the closer to the Society that to the greatest degree furthered his aims or gratified his ambitions.

If there are to be two or three Society meetings during the year in North Carolina, it is but natural that any member of either Society, will attend the most convenient. The exigencies of convenience are more often followed than the dictates of loyalty. The members that attend these new organizations will hardly be induced to attend the State Society. The officers of these new bodies will strive to make their meetings successful. Recent converts are always the most zealous. I think we will make a grave error, and one not easily remedied, to encourage any organizations that must tend to cause a division of professional interests, and lessen that power for professional advancement which this Society has so faithfully and earnestly worked for through long years. A society formed of material outside of North Carolina can, and will not feel the same pride and interest in professional growth, as one belonging exclusively to the State.

This Society has the highest claims upon your loyalty, and cannot afford to further any interests to divide the profession.

Of the making of Medical Societies there is no end. If this thing goes on, Western North Carolina might unite with East Tennessee, to form a Trans-Mountain Medical Society, and the middle section of the State might also organize a Central Medical Association. All of these would leave us with a name only. I most earnestly submit that there is ample room in the State Medical Society for the entire profession of the State. It is only to be regretted there are not offices enough to go around at every meeting. If any of you have ambitions beyond the State limits, the arms of the A. M. A. are wide open to receive you, and will give you every opportunity to gratify them; and its journal stands ready to print and disseminate your papers. This seems to me encouragement enough to broaden out medically beyond State lines, so to speak. So let us enter a solemn resolution here to stand by the State Medical Society, and encourage no others in conflict with its interests. The Tri-State has incorporated in its by-laws, a provision that membership in one of the State Societies shall be a pre-requisite to membership in that body. It judiciously halts there. If the provisions had said that continuous membership it might have been more plausible.

It has been my intention for several years to bring to your attention a matter which I consider more worthy of the most careful consideration. The occasion seems now ripe for it, the membership being sufficiently large to properly maintain it. We are constantly reminded of the fact that doctors are not business-like in their methods. Their time is taken up with other thoughts than of money getting. They lay up little in this world, but immense treasures in heaven, where they may be of service to them in the hereafter, but can surely be of no earthly use to their wives and children who were dependent upon them for food and raiment, and also for their social position in the community. It is no matter of hearsay, but of direct personal knowledge that in many instances in the house of the dead doctor there was not enough ready cash to give him a decent burial, while there was a small fortune in unpaid and non-collectable accounts on his books. This is a sad commentary, and if any plan can be devised by which the families of our dead members can be benefitted, it is a con-

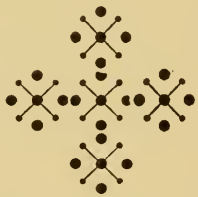
summation devoutly to be sought for. If I can succeed in pointing out a way I shall feel that my mission has not been in vain. Whatever has been accomplished by other medical societies, surely you can do, also. I learn from the *Polyclinic* that the New York Physicians Mutual Aid Association was organized thirty years ago. That journal says: "The record of success attained by a movement originating primarily as a philanthropic charity is most remarkable. When first established in 1868 the object was to afford aid to worthy medical men in circumstances of need, and to assist financially the widow, if, as is only too often the case, she should be left destitute. From such a beginning with a membership of less than twenty and an insurance feature rarely exceeding an amount barely sufficient to afford a decent burial, an association has developed numbering 1,450 physicians, and paying a fixed sum of $1,000 insurance, within a maximum period of five days after death, the cost of such insurance being less than $18 per thousand. This record embodies a suggestive lesson to other communities. A thousand dollars in cash is a very desirable heritage, especially in country communities. There is no good reason why every State Society in the Union could not either alone or in conjunction with neighboring States, organize and maintain successfully such an institution.

Almost as long ago as I can remember anything medical, my grand "Old Master," Prof. Gross, whose name I always speak with reverence, was trying to introduce this feature in the Philadelphia Medical Society. The members of the Southern Express Company and Brotherhood of Locomotive Engineers, have had this feature in successful operation for years. Why should we not have. I hope you can formulate and adopt a plan to carry out these suggestions.

Last year at our Convention there was some discussion as to the propriety of establishing reciprocal relation between the North Carolina and Virginia Examining Boards. No definite conclusion was reached as to any method to obtain this end. For many reasons I have long thought there should be an interchange of licenses between these boards. I now propose a committee of conference between the boards and let this committee settle upon a modified plan of examination for licentiates of one board applying to the other. The North Carolina Board has discretionary authority as to the method and scope of examination; and it is

probable that the Virginia Board is empowered with some latitude.

There are quite a number of our members, who in recent years, by reason of their appointments have become interested in Railway Surgery. This branch of surgery seems now as distinctive as any other, and certain journals devote to it a considerable portion of their space. I would suggest for your consideration the creation of a new section to be styled, "The section on Railway Surgery." The chairman of such a section can introduce many matters of interest in surgery as well as in medical jurisprudence. I would also recommend the establishment of a section in Pædiatrics. These matters are in keeping with the trend of medical thought, and I believe deserve your consideration. I shall trust, gentlemen, to your kind patience to help me perform the duties of your presiding officer.



ANNUAL ORATION.

The Practice of Medicine.

By DR. H. S. LOTT, Salem, N. C.

Gentlemen of the North Carolina Medical Society:

I THANK you for this honor, the pleasure of it was only equaled by the surprise. Ladies and gentlemen, citizens and guests of Asheville, I thank you for your presence, as for the privilege of standing before you, and trust that you may be in some measure repaid for the coming.

I fear to attempt to offer you anything new, lest, like the clown in the circus, I get kicked out. (I tried that down at Charlotte); I cannot offer you anything original, "for there's nothing original in me, except original sin," but the practice of medicine, like the story of love, is ever new, ever near to our hearts, and of equal interest to both profession and laity.

The work is begun while attending lectures, for as the adult is but the grown-up child, so the practitioner of medicine is but the grown-up student. The college days are the formative days; all is new, and strange, and wonderful; and as the infant brain gradually awakens to the realities and the magnitude of life, and of living, so the student of medicine, as he begins to comprehend the elementary and fundamental teachings of anatomy, physiology and chemistry, the trident that forms the base of, as it points the way to, the complete structure in process of erection, he awakens also to the magnitude of his task; and lifting his eyes to the future, can see on its misty horizon the first faint rays of the dawn of a life of usefulness and of science.

The life of the student of medicine is, I take it, much like the life of the student in other branches of education; he may work much, or shirk much, as the trend of his mind goes: and yet while the personality of the genus student may be the same, in the studies

there is a difference. It is not cold blooded theoretical deductions, figured out on blackboards, which constitute the day's work and the night's study of the student of medicine, but nature's masterpiece, the human organism, the wonder of which, never ceases and is never fathomed, from its beginning, in infinitesimal protoplasmic elements, to its completion in the anatomically perfect human being; endowed with life, and intellect, and soul. During each day of his work the student of medicine, if he possess the qualities essential to the successful practitioner, awakens more fully to a realization of the fact that it is vital elements, flesh and bone, and blood and nerves with which his life-work has to deal. The lecture room is no longer tedious, but each hour, and each lecture brings fresh food for thought, and new problems, relative to health and disease, for individual study and solution.

The chemical laboratory, which at first bewilders with its multiplicity of uncouth implements, becomes the vantage ground on which invisible elements meet, to be tuned and fashioned by human skill into intelligible shape, and applied to the comfort and well being of human lives.

The dissecting hall, with its ghastly array of gaunt cadavers, entered at first with dread akin to loathing, loses its horror, which has followed us even in our dreams, and becomes possessed of a fascination which can be no more resisted than defined. There is no death there, and though at work among the ashes, each ember is fanned into life by imagination's healthful glow, and in seeking the source, and tracing the course, of muscle, artery and nerve; and in the minute dissection of vital organs, the wonder is that the vital spark is gone, and our subject no longer endowed with the power to think, and feel, and suffer.

The clinic is the student's rest time ; when under the wise and kindly guidance of the teacher, the tension of thoeretical study is relaxed, and he comes in touch with the patient, to "try his wings" both at fathoming human ills, and reducing the science of medicine to the art of healing.

Thus the life of the student of medicine, while full of work, is also full of pleasure, that pleasure afforded by the earnest pursuance of an accepted life work ; and if the metal of the man rings true the day on which he receives his diploma, will find him well equipped to enter the ranks of his profession.

The ranks are always full, but they are likewise always ready to welcome the beginner, and extend to him the right hand of good-fellowship ; and I believe that it is best for the recent graduate to go to work in general practice, at least until he has developed his tendencies. I remember the time when I was trying to decide between going to work, and going to seek further instruction. (I had just about enough money to buy a horse, that is a small horse.) I asked the advice of my much beloved teacher, Dr. Joseph A. Eve, and after having discussed the various phases of the question, his opinion was given in these words, "go to work and study, going to Europe has made more doctors fools, than it has ever made fools doctors." The remark, strengthened by the purity of the man who made it, impressed me much ; therein lay a distinction between substance and shadow. In the practice at the bedside, and furthermore at the bedside of the patient who has applied to us for help, and for whom we feel morally responsible, the best clinical teaching is obtained. When we get a diploma we are just fitted to study intelligently. The man who feels that when he has graduated his need for study has passed, had better turn to the plow, or the wood-saw, or indeed any other honest calling ; 'twere better far, both for his patient, his profession and himself.

In selecting a location, he is a very fortunate man who finds a place where he will be content to begin and finish his life work. The man who is restless, and impatient for quick preferment in medicine or surgery, and moves from place to place to get it, most often defeats his own aim, and lessens his chances of eventual success. The farmer who plows the ground, and runs the furrow in one field, and leaving it, drops the grain in another, reaps a short harvest. Like Rome, professional character and reputation are not built in a day ; but they come, with steps as sure as they are lagging, to the man who is worthy of the reward. And furthermore they come hand in hand, and are both essential factors to success. Professional reputation may be gained through native skill and mental talent, professional character is only gained by purity of life and motive. Reputation is the binding, character is the book ; reputation may bring the patients, character holds them.

The first years, the waiting time, constitute the most trying period of a professional career. They are filled with trials and

temptations, and disappointments. The men on whom fortune smiles early, bringing to them a living practice, without the struggle, through either the descent of a father's mantle to their shoulders, family influence, or other of her fickle freaks, are among the favored few. To the large majority it comes through years of patient work and patient waiting.

In starting out in practice the chafing against the bit is hard to overcome. To sit quietly in the office waiting for calls, with very few dollars in the pocket, and expenses going on in spite. To see the busy doctors on their rounds, doing the work, while we sit idle, is a trial well worth living through, and if bravely borne, yields fruit well worth the waiting. The time is not wasted if properly spent, and the discipline is just what we need. Self-possession, faith in his calling, and faith in his own resources, are most essential to the practitioner of medicine. The man who possesses them has ample opportunities for their cultivation during this period, and will be prepared to meet successfully the first emergency that arises. The man who possesses them not, will be found wanting in the waiting period, and wanting in the work.

Temptations come from every side, and are not confined to those which come through a native fondness for society and its dissipations; for while these are alluring, and may lead astray, they are most often refining and elevating. The true physician is the doctor every where and every when, always ready with brain and heart and hand; nor does his calling debar him from social recreation.

The greatest temptation from that source, and the one, if yielded to, most damning and destructive to the physician's moral character and professional honor, seeks him in the quiet of his office, with gloved hand and gold-lined palm, and pleading tear-stained eyes mayhap; "just a little medicine, doctor! and a little 'treatment,' and please remember that your fee is no consideration." Will he yield, and bear the scar of professional dishonor throughout the balance of his life? The need is urgent, maybe, office rent is due, and the money is at hand just for the reaching; and it is so simple, and really seems to be an act of humanity. Ah yes! I know the temptation; but if he is a true man, and a true physician, with the honor of his profession as dear to him as his own, he will say no! and "the fee" will, indeed, be no consideration.

Such, and lesser ones, constitute the temptations from without. Within the pale of the profession there are many, living because countenanced, and equally ruinous to the physician ; if not to his honor, to his dignity, and to the scientific pursuance of the practice of his art.

The cry of the medicine vender is not confined to the streets; he enters the physician's office with much elegance and suavity ; appareled in the latest style both in person and in speech, and at all ages, from the beardless recruit, who has just shed his pinafores, to the dignified veteran, who had "such an extensive practice" that he must needs leave it, forsooth ! and go to traveling in the interest of a "pharmaceutical establishment." And——"my dear doctor, we make the best, the very best; the products of no other house can compare with those we offer you. We visit the physicians only, and introduce our elegant preparations strictly on their merits, and only through the medical professions. And this, our special and latest product, (full formula on the label) is working wonders. Where it is known the profession simply cannot do without it, and it cures, always. These samples I will leave with you, and to more you are welcome just for the asking. When prescribing doctor, there is so much fraud, kindly specify our goods, and the results are certain." The recitation is well taught, and beautifully rendered, most pathetic in fact. And on leaving, "your full address, doctor, Ah ! thank you, this will bring you, each month, our publication, with exhaustive reports from the most prominent men, on the successful use of our preparations." "And remember, please, that we will gladly furnish you with literature and samples at any time." And they are furnished, and their pamphlets form the text-books, and their nostrums the medicinal agents of numbers of practitioners. It is so much easier to let some one else do one's thinking ; and to use a remedy that is known to be the right one, for it says so on the label. And then they are so safe too, nicely put up in little boxes ; and the little pamphlet tells you just when to give No. 1, and just when to give No. 2, and all we have to do is to look at the numbers, never mind about the patient. The little pamphlet says that hundreds and hundreds of cases have been treated by them, with never the loss of one.

Now, in order to find a very large number of the authors of these valuable reports you would have to conduct your search

with a lantern in the daytime. And the remedies lauded, most often under mysterious and high sounding names, are simply standard drugs, that are used by all intelligent physicians each day in their practice. Let the pharmacist devote his energies to the securing and preparing of pure and unadulterated drugs, and not assume the office of clinician and teacher of therapeutics. The instrument maker to the maker of good instruments, and leave their use, and the "post-operative sequelæ" to the surgeon.

Medical literature offers a maze through which the young practitioner passes in bewilderment; and the only wonder is, that he does not stray further and more often. Just as untrammeled freedom of the press publishes crime and immorality, and sows broadcast their seed in brains and hearts found fertile for the growing; so do unrepressed and mongrel medical journals teach and foster unsound principles and practice of medicine. The ideal medical journal, as the ideal physician, should be free from advertisements, and free, also, from solicitations for patronage.

The want of to-day is not for literature on subjects medical and surgical; of that there is abundance; but for the power to discriminate between good and bad, the ring of the false, and the ring of the true. Like all human effort, a large mass of it sinks into restful oblivion. Just here and there, untarnished and untattered by time's progress, stand out in bold relief the work and thoughts of men endowed by nature with the power to read her lines correctly, and follow close their teaching. The best literature that we have to-day, most sound in pathology, accurate in diagnosis and helpful in treatment, is found in the works of the older writers.

Men with their working time behind them, and a goodly number of well rounded and well ripened years of experience and observation from which to draw.

Systems of medicine, compiled from many sources and many authors, and shaped into a number of immense volumes, make quite a formidable array on the shelves of a book-case, and are quite profitable, no doubt, to the compiler and publisher; but I question much their value to either student or patient.

Such works, together with most enticing terms of purchase, are presented to the physicians throughout the country by the well-tutored representatives of lay publishing houses. Just think of it! "Come all the way down from the metropolis, bearing all

the expense and distress of travel, for no profit—mark you—but solely to offer to benighted doctors the "very latest work" by some embryonic professor, that their house is "pushing." Ask one of these gentlemen for a standard work, by a master in medicine or surgery, and his face is a study in its blending of sympathy and pity: "My dear doctor! we don't carry that, it is out of date; the works that I offer you are the latest. And the engravings, doctor, see the number of fine engravings."

Now the surgical picture book, while having a sphere of usefulness, portrays rather the financial resources of a wealthy corporation, than the native skill, wisdom, and conscience, the three essentials, of the surgeon. These are best portrayed either through personal contact, or in close study of the volumes which set forth the spirit of the man, in the writings of the life work.

However trying it may be to the physician's mental and moral fiber, the waiting time passes and the calls begin to come. The first call marks a crisis which is ever remembered. It is the culmination of hope deferred, the beginning of the end. It may be to the mansion, but the chances are very great that it will be to the humble cabin, and in either case the issue is of vital import.

With the care and precision which mark the well trained student, and guided by the lights of to-day which give a knowledge and understanding of obscure pathological conditions, the patient is examined and a diagnosis made of appendicitis. The trouble has become quite the fashion, and 'tis rather good fortune to have been called to a case, if it can be brought to a happy termination. The patient is suffering, the family anxious, and the skill, wisdom, and ability in general of the young attendant much shadowed by doubt. What course of treatment is it best to pursue? The teaching and literature of to-day, which have been studied so well, present a mottled and conflicting mass, seemingly at war with itself, and failing now to guide straight and true.

At one elbow stands Prof. Salts, with a string of extras to his name as long as your arm, and shaped into a nice little pyramid underneath, who in his latest writing says that appendicitis is is not a surgical disease at all; but is due to a *germ* which makes its home in this little intestinal prolongation and its immediate neighborhood; and if the doings and feeding of the possessor of its habitat incur its displeasure by deranging its medium of existence, much trouble ensues, and the culprit is in danger of

capital punishment, which, however, may always be averted by medicinal treatment, tending to expel this ill-conditioned and ill-tempered inhabitant, and create a proper medium of existence for its successor. Surgical interference is practically criminal, and never indicated. And then a long "series" of cases are cited in which the diagnosis was sure, all were treated with salts and calomel, and all got well.

At the other elbow stands Prof. Lancet, with an equal number of attachments, who says that all cases of appendicitis are surgical cases ; delay is dangerous, aye even criminal, and should be subjected to operative interference early. The exciting cause, in most cases, is a foreign body, having been introduced either by way of the stomach, or formed within the gut as an enterolith, and its removal, together with the inflamed and often sloughing appendix through an abdominal incision, the only safe or rational procedure. Why, quite recently there appeared in a medical journal, an elaborate article, prepared no doubt, by a member of the firm of Lancet, Duck Pants & Co., strongly urging the removal of the appendix vermiformis in early infancy ; and recommending to its securance the establishment of a law like that enforcing vaccination.

Now, in the face of such conflicting testimony, from presumably authoritative sources, the position of the man who has not years of experience and observation from which to draw, may be much embarrassed. That co-workers in the field are so widely at variance is most unfortunate. The fundamental laws underlying and governing medical and surgical science, are as fixed as were those of the Medes and Persians, cleaving close to nature's lines. Not wasting precious time in vague theories, but striving to aid nature's efforts at throwing off disease, while they also strive to solve her mysteries. 'Tis the expounders of the law who vacillate, and not the law. That "doctors differ" is a much favored saying among the people, and often reflects discredit upon the science of medicine, when the real fault lies in the want of equal powers of observation, and equal training of its representatives.

Finding himself thus at sea, between the two extremes of authoritative opinion, which keep each shore in restless tumult through the splash of their discussion ; the man of resource, sustained by native skill and native wisdom, drops into the strong, deep middle current, which traces its source to the masters in

medicine and surgery, and pursues its way from century to century, unswerving as unchanging, and bearing on its broad and mighty bosom the fixed and faithful laws which contribute to the prolonging of human life, and the relief of human suffering.

Thus guided, the man of doubt becomes the man of action. The first care is for the patient, whose vitality and environments are taken into account, and the course of treatment advised which promises best. Each case is a law unto itself, and no fixed rules can be established or followed.

A simple catarrhal appendicitis, or as correctly speaking, the perityphlitis of Gross, involving the appendicular region, is often tided over by rest, salines and proper diet, without the need for alarm. Or, if on the other hand, the case presents the type so perfectly pictured by Dr. Hunter McGuire, with a probable foreign body, the formation of pus abcess, with a likelihood of perforation, then to open the abdomen nearest the seat of inflammation, let out the offending matter and drain the cavity, is beyond question the right course to be pursued ; and,

> "Do thy duty, that is best ;
> Leave unto thy God the rest."

Such issues, with such problems for solution, will present constantly in the work ; and to think and act promptly is most apt both to save the patient, and hold the confidence of the people.

The case terminates favorably, the patient gets well, and the diagnostic skill and successful treatment of the physician are much talked and lauded by the family and neighbors. Or, wait ! the patient does not get well ; the life line has been crossed, and the case terminates fatally. Now, the skill in diagnosis has been equally great, the course of treatment adopted has been equally correct, and yet the issue is most distressing to all concerned ; and not least so to the physician. He has been guided by his lights, and done his best, and yet the shadow of a failure rests upon him. Each step in diagnosis and in treatment is reviewed, and while found to be abreast of the best teaching of to-day, and to have just suited that particular case, he questions their wisdom ; and to the disappointment and discouragement are added the pain of feeling that possibly some other course would have been best pursued, and might have saved the patient. Do the people know what the doctor suffers in the loss of a patient ?

They are his judges, they make or mar his future. A few will censure his boldness, many will question his skill and ability, but the large and ruling number will weigh the matter justly. Into the balance with reputed zeal and professional ability the character of the man is dropped ; and if sound and pure, the swing is in his favor. Failure, while cruel, is ofttimes a better teacher than success. The doubt of self with its questioning and study, are fertile paths to plains of broader knowledge. As to adverse criticisms, the doctor gets his share of them. No matter how earnest his work, or how pure his motives : and

> "Let any man once show the world that he feels
> Afraid of its bark, and 'twill fly at his heels ;
> Let him fearlessly face it, 'twill leave him alone ;
> But 'twill fawn at his feet if he flings it a bone."

Thus to pursue and to comprehend the practice of medicine, in all the breadth and fullness of its scope, the physician should be a man of power, mental, moral, and physical.

Mental ability, with quick conceptions and ready sympathies, fits a man to hold position in the foremost ranks of his profession. The case pictured is but a drop from the mighty ocean. Throughout the working time, like problems, medical and surgical, for individual solution, are coming up each day and hour in every branch of the work, and the general practitioner must have a knowledge of all ; theorists form a large and also a valuable school, in that their searchings and controversies often lead to truth. But theory must be reduced to science, the kernel must be freed from its shell, before it becomes a mighty oak ; and upon the general practitioner, with greater powers of observation and a broader field in which to use the power, mostly devolves this task.

The advances of to-day, along all lines of our profession, are most wonderful. The microbe hunter, crying Germs ! Germs ! and waving aloft as he runs his barber's banner, fresh-dipped from the many-hued solutions, has done a great and lasting work ; *he has found the germs, and can only see his find :* but he has taught us to be clean ; and if to our minds it is still a question whether the germ is a *cause* or a *result* of its medium of existence, having gained the house-top, we should not despise the ladder which has put us there.

To preach and practice cleanliness belongs equally to all branches of our science, and while through its medium the advances in surgery, and especially in abdominal surgery attract most admiration and wonderment, the field for teaching and guidance to the same end is equally broad in the general practice.

Tuberculosis, syphilis and cancer, which in their various manifestations constitute the greatest scourges to humanity, have their origin in filth, either of person or environment ; and whether the germ exists before or after the establishment of its medium, the preventive lies in cleanliness.

The same principle underlies the latest and most scientific treatment of all diseases with which we have to cope. In auto-intoxication, with all that the term implies, we recognize the chief source of danger to the vitality of the patient, and in stimulating the emunctories, and keeping up nutrition we also recognize the best means of ridding the system of the accumulating poisons, and of preserving the vital spark.

It is just here that the serum therapist, heralding his theoretical antidote, comes into clash with the true scientist ; the man who does not take to each new path that offers, because it is bright, and easy, and diverting. Nor will he either, without knowing well the reason, inflict upon an organism laboring under a self-engendered poisou, which taxes to its fullest the resisting and eliminating power, an additional one of even greater and more deadly intensity.

The electrician subjects both himself and a most valuable therapeutic agent, to the criticism and ridicule of intelligent surgeons, by reporting a "long series" of cases in which, under the magic influence of the current, huge fibroids have melted like snow 'neath the summer's sun.

Such aberrations, gentlemen, are most innocent in origin, and not intended to misguide; but are simply prima facie evidence of a want of equal training, and of equal powers of observation in the authors of their being. And furthermore, they lend much to establish the fact that the true scientist is not the isolated and pedestalled myth that current opinion mostly holds, but a living reality, in and out among the people every day. The man with the eye to see and the wit to grasp nature's processes, bearing in mind the elements essential to life ; and possessing the wisdom that tells him when to aid, and when to leave her to her doings.

In his moral character the physician forges the link that binds together the profession and the people. Strip the man of moral strength and moral purity, and though he be possessed of the highest degree of skill and wisdom, the picture has lost its glow, and becomes one from which both people and profession shrink. The duties of the physician are such, and through them he is so intimately associated with the most sacred ties of heart and home, that his personality becomes a household factor. His help and counsel are sought and trusted ; and even in times of health, or trifling ills, "what the doctor thinks" is an element of no small moment in deciding questions both of duty and of pleasure.

Throughout prolonged ordeals of trying sickness, when hearts and brains of friends and relatives are racked with pain and apprehension, the family physician becomes the stay and guide of all. His coming is ever welcome and his presence gives strength and hope.

In daily contact with patients the moral fibre of the physician is stoutly tested. There is a strong tendency on the part of some people, who constitute a fair per cent. of the doctor's clientele, to make a diagnosis of their ailment, and even to formulate a line of treatment for the same, and then apply for professional endorsement. Now to cater to their demands would be most culpable, while to find and meet their needs, both wisely and kindly, offers a problem which is at times most difficult.

In the ranks of the profession it is not science, but moral purity of life and motive that makes the front invincible. The paths of earnest and faithful workers are often widely divergent, and their deductions widely at variance, but each is striving for the same end, and from each is culled a grain of truth, which dropped into the store-house ready garnered, adds to the richness from which all may draw, and also adds a link to the ever-lengthening and ever-strengthening chain of professional love and unity.

In personal contact with fellow physicians, each man has a moral influence. We seldom come in touch with a man from whom we do not learn something, either to cultivate or avoid. To our seniors we look up with admiration akin to reverence. They have what we want, the skill, the wisdom, and—the practice, and it has been my experience to find them ever ready to lend a helping hand, and give the word of counsel and guidance of which we often stand in need. 'Tis not so much the patients

that they send us, as the "word in season" dropped here and there in soil rich of their tilling, that lets the mantle gently down to the shoulders of their successor as they relinquish the work, and brings with it the confidence and patronage of the people.

Physical strength and powers of endurance are to the physician as paint and canvas to the artist's dream. Without them the vision lives in eye and mem'ry only, nor could the world either share or be bettered by its power and beauty. With them, from tenderest hue to full and glowing color, the canvas portrays the artist's inspiration. 'Tis a life of doing, not of saying; and in the physical man lies the foundation to the superstructure. Strength, as of a man; and gentleness, like unto a woman are attributes peculiarly essential to the physician. Each fibre of nerve and muscle is trained and adapted to its work; ever under control, at command of the brain's supreme direction, and always with strength to spare. With the gentleness of a woman, the new born babe is washed and dressed and laid in the mother's arms. Or, as the chance may be, with the finest co-ordination and adaptation of muscular movement, the most trying surgical operation is done.

The loss of sleep, (burning the candle at both ends,) the hurried meals, the long hard drives through rain, and mud, and snow, and—the collecting! all tax the doctor's physical strength and powers of endurance to their utmost. There is no hour that he may call his own; all time and skill, all power of brain, and heart and hand, belong to his profession and his patients.

> "Therefore though few may praise, or help, or heed us,
> Let us work on with head, or heart, or hand,
> For that we know the future ages need us,
> And we must help our time to take its stand."

And the patients love "The Doctor," and when the task is done, and the life is spent, from each home comes the sorrowing sigh:

> "But oh for the touch of a vanished hand
> And the sound of a voice that is still."

REPORT OF THE SECTION ON PRACTICE OF MEDICINE.

The Continued Fevers of North Carolina.

By BENJ. K. HAYS, M. D., of Oxford, N. C., Chairman.

I HAVE no apology to offer for bringing before you to-day a subject with which you are already familiar, which you have often discussed, and of which no doubt you are growing weary.

The frequency with which the continued fevers of North Carolina recur; the honest doubt that often exists in the mind of the most intelligent clinician as to the nature of the fever with which he has to deal; and the stern fact that the responsibility of solving the problem rests upon the practical country doctor, and not upon some theorist in a far away German laboratory, makes it imperative that this subject should ever be kept fresh in our minds. I have no new theories to advance, but have tabulated answers to fifty circular letters of inquiry in regard to these fevers, sent to representative men in various sections of the State. In addition to the answers sent to me I have drawn from similar reports made in neighboring States, from the latest text books, and from current literature on the subject.

Having made my report I will be followed by gentlemen eminently qualified to discuss this broad subject in its various phases.

1. How do you classify the fevers seen in your practice?

To this question the answers were: Malarial, typhoid and simple continued or ephemeral. Six answers included typho-malarial and of these two indicated that they regarded typho-malaria as a distinct disease.

2. To what extent do they prevail and what is the mortality of each?

Typhoid fever was reported with about equal frequency in the different sections of the State with an almost uniform mortality of 5 per cent. Osler reported a mortality of 8 per cent. in eight hundred cases treated at Johns Hopkins. Malarial is much more frequent than typhoid in the eastern and central portions of the State, rare in the west. The mortality of malarial fever is practically nil with the exceptions of the rare cases of pernicious malarial seen in the extreme east.

Recent investigation has proved that malaria has been diagnosed in this country far more frequently than it exists. More quinine was used in 1880 than in 1890 and far more in 1890 than to-day. It was the custom in former years, and I regret to say still is with some intelligent practitioners, to regard almost all irregular forms of fever as either malarial pure and simple, or in some way influenced by paludism. There is no doubt that tuberculosis, typhoid fever and many forms of auto-infection have been repeatedly diagnosed and treated for malaria. When the fever disappeared with the patient under the influence of quinine it was regarded as a positive proof of the accuracy of the diagnosis, and when the fever continued it was maintained with equal certainty that on a certain class of malarial fevers quinine had no effect.

From 1885 to 1890 inclusive, a larger number of deaths was reported from malarial than from typhoid fever in the cities of New York, Brooklyn and Baltimore.

During the past five years deaths from malaria have been very infrequent in these cities, while the mortality from typhoid fever has increased. We would like to believe that this reduction in the mortality of malaria has been due to improvement in treatment or sanitation. Unfortunately it can be accounted for on no other hypothesis than that of an error in diagnosis in the earlier reports.

3. State frequency and character of eruption?

To this question only one observer answered "eruption in every case of typhoid." Three or four reported eruption in 50 per cent. of cases, quite a number answered 20 to 25 per cent. and others "seldom seen," "rare and indistinct," "very infrequent." There is no doubt that the characteristic rose colored eruption noted by Northern writers is frequently absent in otherwise typical cases of typhoid fever seen in North Carolina, and that in

this regard at least our fevers differ from those seen in the Northern States.

Loomis doubted if the rose spots were ever absent. Osler and Pepper agree that they are not always present, that they are more frequently absent in children, and that in some cases they are found on other parts of the body when absent from the chest and abdomen. When present they are regarded as pathognomonic.

4. Do you see typhoid and malaria in the same patient? If so state whether you regard this as a mere coincidence or do you believe the two to be combined in one disease—typho-malaria?

To this question Dr. Osler replied, "There may be combined infection—we have had one case only. This we regard as a coindence, and so far as our experience goes the malaria does not influence the enteric fever in any special way. A large number of our typhoid cases come from very malarious districts."

Dr. R. L. Payne, of Norfolk, wrote: "Both poisons may exist in the same patient, modifying the usual symptoms though usually the malarial element is eliminated early by the use of quinine."

A reporter of recognized ability who has devoted a great deal of study to this subject, confirming his diagnosis by microscopic examination, writing from a section in which both forms of fever prevail says: "Never, I believe the typhoid germs are killed by toxins from the malarial germs, hence the two cannot exist in same patient at the same time."

A number of reporters, men of experience and recognized ability, notable among whom was the Nestor of our society, stated that they had not seen the two forms of fever in the same patient. The majority of reporters however recognized the mixed infection as a rare coincidence. Two reported typho-malaria as a separate disease and four others were in doubt. A number of reporters objected to the term typho-malaria. It was clearly shown that the term did not convey a definite idea, since one class of observers used it to indicate one condition, while others used it with an entirely different meaning. Thus, the term is employed to indicate the presence of malaria and the specific poison of typhoid fever; by others, malaria of a severe type in which the patient sinks into a typhoid state; while a third class of observers use the term to designate a separate and distinct disease. I have not been able to find it so used however by any standard author-

ity, even among the older writers. The term was introduced by J. J. Woodward, of the U. S. A., who wrote as follows :" Typho-malarial fever is not a specific or distinct type of disease, but the term may be conveniently applied to the compound forms of fever which result from the combined influence of the causes of the malarious fevers and of typhoid fever." The results of Woodward's investigations are too well known to be dwelt upon. Among the cases diagnosed by him typho-malaria there was a mortality of 8 per cent. Those diagnosed typhoid fever had a mortality of 35 per cent.

In our recent war with Spain large numbers of camp fevers received careful clinical study, aided by exact laboratory investigations, carried on both in the camps, and in Northern hospitals where many of them were taken for treatment.

Dr. Charles E. Nammack, writing of the camp fevers that he had seen in Bellevue Hospital said : "We found no reason to recognize a distinct type of continued fever which is neither malaria nor typhoid, or one which is a compound of both—the so-called typho-malarial fever."

Dr. Meyer stated that in thirty or forty soldiers treated at Mt. Sinai Hospital there was only one case in which there was any approach to a double infection.

One writer said that he had made inquiries at the various hospitals of New York City concerning the double infection and learned that in all but one hospital the malarial organisms had been found in the blood of from one to five per cent. of the typhoid fever cases.

Dr. James Ewing has made the following valuable report, based upon the study of 800 cases of fever at Camp Wykoff. He said : "A great many cases which were indistinguishable from typhoid fever without the most careful examination proved to be clear cases of infection with the æstivo-autumnal organism of malaria. Over two hundred cases of typhoid fever were studied and in nearly all of these there was also malarial infection. In spite of these favorable conditions for mixed infections in no undoubted fatal case of typhoid fever (in which the diagnosis was confirmed by autopsy) was the malarial organism found. In five cases of typhoid fever the plasmodium of malaria was found in the blood during the acute exacerbations occurring during convalescence from the typhoid fever. From these observations the following

conclusions were drawn : (1) Mixed infection of typhoid fever and malaria undoubtedly exist. (2) When typhoid develops in a case of active malaria the element nearly always becomes quiescent, and has little or no effect on the course of the typhoid fever. (3) Malarial infection frequently outlasts the typhoid infection and makes itself manifest during convalescence.

5. Do you see continued fever which is neither typhoid nor malarial? If so give clinical history of such a case?

To this question the majority of the answers were, "No." By others a mild form of fever was described lasting in some instances only a few days, in others three or four weeks and attended by headache and foul tongue, but no epistaxis, diarrhœa, tympany or rose colored spots. Those who had made microcopical examinations of the blood reported the malarial organisms absent, while nearly all agreed that this fever was uninfluenced in its course by quinine. It is evident that the fever here described as a third form of continued fever by a limited number of reporters is regarded by others as a mild form of typhoid.

Dr. James, in the Loomis-Thompson System of Practical Medicine the most recent authority that I have been able to consult, says of these fevers described as simple continued, ephemeral, catarrhal and febricula—that they are far from uniform in their manifestations; comprise irregular cases of many different maladies; many are typhoid fever; some are due to unnoticed lesions of throat; many are due to fatigue or exposure especially to heat.

6. To what extent and with what result do you use quinine in such fevers?

Upon the mild form of fevers just described it was generally conceded that quinine had no effect. Dr. Robinson, of Danville, who likes the name typho-malarial and whose opinions are certainly worthy of most serious consideration writes, "If malarial I give commandery doses of quinine, and when the malarial element predominates I obtain an abatement of temperature and all symptoms. I do not use it in typhoid fever but often when not tolerated in first two weeks of typho-malaria it does good service when the fever remits.

Over the names of three men of recognized ability from an eastern town was the following: "In this section we always use quinine in all fevers at first and successfully in a large majority

of cases. Cases not yielding to quinine in three or four days generally prove to be continued malarial, typho-malarial or typhoid in order mentioned."

A large number of reporters stated that they had used quinine for the first three or four days for diagnostic purposes. If the fever was malarial in origin it yielded promptly, otherwise it generally proved to be typhoid, in which case quinine was worse than useless.

In a private letter Dr. Osler stated that, "Only a careful blood examination enables us to differentiate cases of the æstivo-autumnal malarial from typhoid fever," but in their published writings both Osler and Thayer positively affirm that any form of malarial fever known in this country will yield to quinine in three or four days.

In a paper read before this Society two years ago on this subject Dr. E. C. Register maintained that quinine was a positive and speedy cure for malaria, and quoted numerous leading authorities to that effect. His position was undisputed by those who discussed the paper at that time and since then has been confirmed by every observer who has based his diagnosis upon a microscopical examination.

The majority of doctors in North Carolina use quinine in the first few days of fever to aid in determining the diagnosis. This has been my own practice, but recent investigation has convinced me that it is wrong. Take three cases of fever which present when first seen, the same clinical picture. One is typhoid, one malarial and one due to gastric irritation. We give quinine in all three. Upon the typhoid patient its effect is to increase nervousness, produce nausea and perhaps hemorrhage and death. The patient suffering from gastric fever is certainly made worse by the quinine and only the malarial patient cured by it. Since it has become possible to diagnose malaria with certainty by the microscope, a method both safe and simple, I maintain that it is wrong to hazard the use of quinine.

Conclusion.—From this symposium no definite conclusion can be drawn since the opinions expressed have been so varied. My own conclusions in regard to the present status of the continued fevers in North Carolina is as follows:

I. Mixed infection does exist, but is extremely rare.

II. The term typho-malaria is indefinite, misleading and should be abolished.

III. Malarial fever is diagnosed more frequently than it exists.

IV. Malaria invariably yields to quinine, therefore there should be no continued malaria fever.

V. Typhoid is the only form of continued fever seen in North Carolina.

VI. Tuberculosis, la grippe, septic intoxication, septic infection (especially in child bed) thermal, and other forms of fever are often mistaken for either typhoid or malaria.

DISCUSSION.

Dr. REAGAN : I consider the paper a very valuable one, but my opinion is there is a difference in typhoid fever in this mountain country and typhoid fever in a different section. Dr. Miller, professor of the practice of medicine in one of the colleges of Atlanta, and myself had a conversation upon this point some years ago. Dr. Miller frequently visited the mountains in this and other sections in the summer time and saw many fever cases and he agreed with me that there is a difference in the typhoid fever of the mountains and the typhoid fever where malaria exists. Here we have no malaria. There is a large section of the country through here where it is unknown, and I suppose always will be unless it is brought here, but there are cases of malaria which we have to contend with, where persons have the malaria in the system and come here for treatment, and in cases of that kind the typhoid fever here is very much like the typhoid fever of other sections. I am a Tarheel, not by birth or education, but by adoption. I have been here fifty years, and I suppose that would entitle me to be called a Tarheel or North Carolinian. When I came to this country I had a great deal of malaria in my system. It was thought by physicians that I could live but a short time, but I have lived, while those physicians have all gone before me. I think there ought to be a distinction made between the mountain typhoid fever and the typhoid fever of malarial sections.

DR. ROYSTER : At Dr. Hays' request I have made up my mind to make a few remarks on this subject. I have already on occasions before this read two papers on this subject before the

Society. In the first one of those I took the ground that there was no other continued fever in North Carolina except typhoid and malaria. In the second I pointed out by some practical work on the subject the proofs that I had brought to bear. I am still of the same mind and want to reiterate the statements I made in both of those papers, though I have recently done very little work in that direction, having been busy with other matters. I have not prepared anything for this discussion, and therefore must go over the ground that I have before done. In my former papers, as I said, I took the ground first that there was no continued fever in North Carolina. I think the burden of proof rests upon some one who believes that there is, to prove it. In sections where we have malaria we also have typhoid. Dr. Reagan says there is no malaria in Asheville or the western part of the State. I do not know that any series of blood examinations has been carried out in sufficient numbers in fever cases to absolutely prove that question. I do not think I am prepared to believe that. I do not know anything about the so-called mountain fever, or why it should differ from typhoid fever in other localities. Second, I believe that quinine is a specific for malaria. I think sometimes that it is administered in a faulty manner, and I believe, as Dr. Hays expressed in his paper, the opinion of Dr. Osler that the æstivo-autumnal type yields reluctantly to quinine. This is a smaller organism than the other two varieties, lives almost solely in the corpuscles, is much harder for the quinine to affect, and possibly more insidious in its onset and development. I have seen cases of that kind which yielded gradually to quinine, but very surely. Sometimes the fever would last ten days, would begin with a chill and temperature of 103, and fall half or one degree every day until it came to normal. I do not believe in the term, "typho-malarial fever," and I concur in Dr. Hays' opinion that it should be abolished. There is no doubt that the two diseases may co-exist. I suppose I have examined the blood of 150 patients with fever, and I have seen what I regard as two cases of mixed infection. It is my rule in every case of fever to examine the blood as soon as possible. If I find the plasmodium on the first examination I give quinine. If I do not I examine again the next day. This question of administering antipyretics, even quinine, just because the patient has fever, is pernicious. It is not the fever, as we understand, that is producing harm. That is only a

surface symptom. My opinion is that to give quinine indiscriminately does harm. It clouds the diagnosis, as much as the continual use of morphine in appendicitis. I have not had experience with the co-existence of the two diseases to see which ultimately predominates, or to make any report as to the relation of the one toward the other. In running over these points hurriedly I may have omitted some things, but my opinion remains the same as expressed two years ago, although, as I say, I have made but little investigation lately. I must make the assertion again that the burden of proof rests upon somebody to study and name the third form of fever.

Dr. Booth: The most excellent paper just read is very instructive. There are a few things in it in which I disagree with my friend Dr. Hays. One point that he makes, however, might be misleading, and at the same time he does not mean to mislead. He means exactly what he says. That is, that the term typo-malarial fever is misleading. That is a fact, yet there is a typo-malarial fever in North Carolina. It is uot like the mixture which exists between the horse and the donkey—we do not get a mule, but we have the two diseases in the same patient at the same time. We have a case of fever here. The fever is low in the morning and high in the afternoon. You give him a dose of quinine and the fever becomes more regular and becomes a case of typhoid fever. You go ahead and treat your case of typhoid fever, and in the convalescent stage you have a regular case of intermittent fever. There are gentlemen here who say there is no form of continued fever in North Carolina except typhoid fever. Now when I commenced practicing thirty-two years ago there was an epidemic of typhoid fever in the section in which I commenced. We had the swelled abdomen, and tympany, a heavy coated brown or thick red tongue, delirium, with the patient sick from six to eight weeks. We knew nothing about antiseptics, yet we gave turpentine, and it certainly did the patient good. I suppose it was its antiseptic properties. We had diarrhœa, sometimes almost impossible to control. We gave opium and nitrate of silver. We calked the bowels if we could, and we usually saved the patient if we did not have perforation. As a rule the patient got well. In the last ten or fifteen years we have had in our section a continued fever. I do not know what it is. None of them die, so we cannot have any post-mortem. We have

very little tympany. They get well in two or three weeks. Quinine does not diminish the fever. I don't know what it is. A good many doctors call it typhoid fever. It is not a febrile fever. It is too long for that. It is not like the fevers that we were acquainted with a good many years ago. As I said, quinine does it no good. I believe that quinine does typhoid fever harm. But in this fever, if you take care of your patient and give him antiseptics, even turpentine and calomel, he will always get well, and they do not only get well under my treatment, but under everybody else's treatment. Those are the remarks I wish to make for the sake of the older men. The young doctor at the present time has a great advantage over the doctor when I was a young doctor. They teach them more, and they are much better prepared to doctor folks than we were then. They have the microscope. I never but once have seen the malarial germ or plasmodium. I looked in another man's microscope. I have a microscope, but I am not a microscopist. But for the older members of the profession I make these remarks in regard to typhoid fever. I think the older men will bear me out as regards the typhoid fever of the past and the so-called typhoid fever of the present.

DR. O'HAGAN: Is there such a thing as typho-malaria? The discussion has wandered off into several side issues. I agree, though, with most of the gentlemen who have spoken that there is no such thing as typho-malaria in this State, but I believe our fever is due to a mixed infection. Time and time again I have seen what we call typhoid fever change into the regular intermittent fever treated by quinine. I have seen again in the convalescent stage malarial fever express itself in the usual way. Like Dr. Booth, I am an old doctor. I have gone through all manner of experience in fevers. The old typhoid fever with the classic symptoms has disappeared of late years. It is not in any manner so pernicious as it was, and I do not know but that the mortality then was due to overdrugging. There is one debt that we owe to-day to the homœopathists—they have taught us how to accomplish much more with much less physic. Much harm has been done with physic, and more especially in the treatment of typhoid fever. I remember one case where the patient in 30 days took 90 grains of quinine daily and still survived. I will not go into the treatment of these fevers. You are all as familiar with them as I am. I will wind up by thanking Dr. Hays for the

admirable paper he has read and the pains he has taken and the valuable information he has given.

Dr. J. H. Williams: There is one point brought out of which I wish to make special note, and that is in reference to the so-called hybrid fevers—fevers of short duration. They are not fevers that depend upon any disturbance of the prima via that we know of, they are not malarial. We simply call them typhoid. They are not accompanied by all the symptoms that accompany our well marked cases. I have observed typhoid fever in its home, Philadelphia, and you all know what typhoid fever is there. I have had an opportunity to observe it here in this mountain section of the country. We have here a fever symptom of short duration, —about three weeks,—that has been called by many, catarrhal fever and gastric fever. A great many names have been given to it, but in almost every instance, and especially of late years, under improved methods of diagnosis, we find that these cases reported as malarial fever have never become infected with the plosmodium. They had this form of fever, but what is it? Under the microscope by this agglutination test, it is shown to be typhoid. It is modified by the environment of the patient. It is modified by the newer methods of treatment, local application of water and all the methods by which we to-day control hyperpyrexia. We do not give quinine, because we have no malaria here except in people who come up here with their blood full of it. I believe there will come a time when typhoid fever as typical typhoid fever will almost disappear from the eastern part of of our country, because that is where the germ best flourishes, and in such quantities that it is bringing about a personal immunity which by heredity will gradually eradicate the disease in its well marked form.

Dr. Hays: Permit me to say in conclusion, that I have far more respect for the clinical experience of these gentlemen who have spent years in the sick room than I have for any theories, and if my paper has does nothing else than bring out this discussion, I think I can congratulate myself upon having read it. In reply to Dr. Reagan—I agree with him. There is a difference in degree in the fevers we see in the eastern and western parts of the State. I believe they are both typhoid fever. So far as my limited investigations carry me, I believe that the literature of these western fevers is an unwritten book, and I therefore wrote to Dr.

J. Howell Way, of Waynesville, for a paper on these fevers, which he is to read, and I am sure he will tell us definitely what they are, as he told me he had collected data on several hundred cases he had treated during the last fifteen or twenty years. In reply to Dr. Booth, he says he likes the term typho-malarial fever. I agree with him that we might use it if it conveyed a definite meaning. There is no objection to it it if it conveyed a definite idea, but the term is misleading, therefore let us eliminate an equivocal term and use one in its place which is definite. Dr. Booth is still in doubt as to whether these mild continued fevers are typhoid or not. We all have known of cases in which a crowd will go on a picnic, or drink milk from a dairy, or do something in which the infection is known to be from a single cause. A large uumber of cases will occur—say twenty-four cases of fever. Six of them die from typical typhoid fever, six have a severe form, six have a mild form, six just feel badly, possibly have a headache and diarrhœa. Are we to believe that this one cause of infection gave four different forms of fever, or is it not more probable that the whole twenty-four had the same form, but owing to the difference in the resisting power and the difference in the amount of poison taken, the fever had a different effect. Dr. T. L. Booth was with me in an epidemic of fevers of this kind, in which I saw over 100 cases. He did not know what they were. Some half dozen of these were typical cases of typhoid fever. The rest were these mild continued fevers. I see no reason on earth for giving a different diagnosis for the two.

Typhoid Fever as Met With in Fayetteville and Surrounding Country.

By J. F. HIGHSMITH, M D., Fayetteville, N. C.

The physicians in Fayetteville and vicinity are accustomed to seeing cases of continued fever, which apparently come on as a malarial remittent, but are not controlled by malarial remedies, be they ever so well tried. I claim that this type of fever is typhoid, such as we have in this locality, and to illustrate, I cite

the following case: Mr. A. came to my office August 1st, complaining of chilly sensation, aching all over, fever 103, felt reasonably well until the day before consulting me though he had been languid with no appetite for a week. Bowels had been regular, had no headache, epistaxis, general weakness, or any fever until July 31st, the day before I saw him, when he thought he had some fever but was at his work. From this time on for four weeks he had continued fever. When I first saw him I gave him a thorough purgative of calomel 9 grs., bi-carbonate of soda 20 grs., divided into three doses given every two hours, followed in six hours by a dose of salts. From this purgative dose the bowels were moved well. On the morning of the second day I gave quinine sulph. 30 grs., 10 grs. at 5 a. m., 7 a. m., 11 a. m. In the afternoon of the same day at 4 o'clock, the temperature being 105, I gave acetanilide 5 grs., with bi-carbonate of soda 5 grs., and ordered it repeated in three hours if the fever was above 103. The second dose at 7 p. m. reduced the fever to 102. This plan of treatment, well regulated diet, quinine sulphate 30 to 40 grs., in the twenty-four hours with tepid baths of water and vinegar was kept up for seven days, fever fluctuating from 105 to 100. On the morning of the 7th, or the seventh day of his illness, I decided to give no quinine, but simply give nourishment and sponge baths, first, if the fever went above 103, if not controlled by baths and kept at 103 or lower, I ordered acetanilide as above, repeated every three hours until the fever cooled to 100 or 101. With this treatment the temperature was held down, it not being necessary to give more than two or three doses in succession to reduce temperature from 105 to 102. On the fourteenth day of his illness, the fever at its highest, and without any antipyretic, at 4 p. m., did not register but 102. I then discontinued the antipyretics and did not repeat them in the case. The bowels had been slightly constipated up to this time. I had given several doses of epsom salts with good results. It would give two or three movements with much relief to the patient. The fourteenth day, the tongue being dry and some tympany of the bowels, I commenced on turpentine 5 drops with mucilage of acacia, tablespoonful, and gave this off and on for the remainder of his illness. From the fourteenth to the twenty-first, fever ranged from 102 to 100; from the twenty-first to the twenty-eighth day, from 100 to 98 F. I gave

a well regulated diet, liquid peptonoid milk, chicken broth, beef juice, stimulants as indicated. After the twenty-eighth day the patient made rapid recovery, no sequelæ.

I report this case not for any peculiar symptoms manifested or special treatment in the case, but simply to illustrate in a rough way the type of continued fever as it most commonly prevails in our section. All cases are not so mild as this, but would place this as an average case. Now and then will have a case somewhat similar and will have either epistaxis, bowel complication, petechial eruption, but it is seldom met with, and when we do it means a hard fight.

I will now report the following case to illustrate how similar the diagnosis was, and under the same treatment how different the results were: On August 1st, Mr. B. came to my office on the same day with Mr. A., and with every symptom similar to Mr. A.; came from the same locality, had been drinking the same water, living on the same plantation with him. I gave him calomel followed by saline, then quinine 30 grains in the morning for two days, then reduced to 20 grains per day, and then to 10 grains, dieted him, and on the fifth day he was out, no fever, slightly weak as a result of his illness. In the course of ten days he had entirely convalesced.

It has been my plan in these fevers in this locality to treat them in most cases as malarial fever at the beginning, not knowing in many cases in the beginning whether I had a case of typhoid or malaria, and could arrive at a diagnosis only by exclusion, and taking for granted that typhoid be excluded; then sometimes I don't know what I am treating more than an irregular and continued fever which has to run its course. For many of these cases do not yield to treatment for malaria, yet I think the gravity of the disease is modified or made milder by quinine in the beginning. While on the other hand many of them do not have a typhoid symptom more than the temperature record and that, you will find, to be typhoid in character. Such being the case I often feel that I am abusing or needlessly using quinine in many cases and very likely my patient would do better and be more comfortable without it. But how are we to ever know the true cause of the disease? Is it malaria or is it typhoid? Can we arrive at the correct diagnosis without the use of the microscope and an analysis of the blood for a malarial and typhoid bacilli,

that we may better know how to direct our treatment in the beginning of the disease? I think, in most cases, by a careful examination of the patient we can diagnose typhoid as met with in this section, from the symptoms which it carries, even though we do not have the clinical symptoms well marked as is taught in text-books. One among the first things I take into consideration is the age of the patient. This disease is most apt to be met with between the ages of 16 to 35 years. The general expression of the patient is a wide-awake, nervous state, face and lips red, cheeks flushed and eyes bright as if the patient was in the most perfect health. The tongue appears contracted and red around the borders, and on extending it will be tremulous, showing a nervous condition, may or may not be coated, moist and of a fairly good color and may remain so throughout the disease. The skin is usually dry, no moisture about it, as is found in malarial troubles and has not that sallow and anæmic appearance so common in malarial cases. After fever has lasted for fifteen or twenty days the patient will have periods of sweating which are not copious. A petechial, or rose colored eruption is seldom found, and if so, slightly, and indicates bowel complication. The stomach is found very irritable and has to be watched, so much so that often I have thought that I was dealing with a case of gastric fever. The nervous complications are usually mild as compared to the low mutterings or wild delirium of typhoid enteric. Epistaxis, a most common symptom of typhoid, is seldom met with and when it does occur is not grave within itself, but is a signal in the case, and should warn the physician that he has a stubborn case to treat. The fever is the most marked symptom to govern us in the diagnosis, and in some cases, the only thing upon which we can base the diagnosis, in this locality. The temperature record in most cases is very much like that taught in the text-books on enteric fever. Now and then I have seen in the bowels marked typhoid symptoms, much tympany and distention of bowels, gurgling in right iliac, diarrhœa, followed by hemorrhage, but this is not common and when it does occur the patient is apt to be a new comer, his first or second summer in this locality. The assimilation of the bowels is bad and in them seems to be located the disease, and would appear to be a bilious enteric condition, but not such a state as would be looked for in genuine typhoid; still I believe that the conditions

exist in the bowels as typhoid, such as we have in this section. I am sorry that I have never been able to make pathological investigations of the true condition of the bowels. If in these cases it is not typhoid, why does not quinine control the disease? We know that quinine does not arrest the disease; but as I have said before in some cases where they bear quinine and it is given in good dose in the beginning of the disease, that it appears to lessen the gravity of the case and makes it much milder, still, it runs its course from three to five weeks, quinine or no quinine. The mortality rate I am not prepared to state, but it is certainly much less than in typical typhoid. As to treatment: get a nurse. Then, first, I support my patient by giving a well regulated and easily assimilated diet. Such as peptonoids, beef juice, chicken broth, sweet milk, buttermilk, egg albumen water. For the last few months I have used less sweet milk as nourishment in these cases, as many of my patients could not digest it. In these cases I have used buttermilk, chicken broth and beef tea instead, with much better results. I direct my patient to drink water freely for I believe it to be a safeguard to the various organs, and helps the excretory organs to throw off the poison of the disease from the system. Hydrotherapy, in the full sense, I have never used in treatment, but I believe when the surroundings are suitable, it is good treatment for *some* cases *but not for all*. As to drugs in the beginning of the disease I usually give calomel 8 to 10 grs. with soda when first see patient, if indicated; repeat the dose in four or five days. I keep the bowels well open. Like to have from two to four movements in twenty-four hours. I have often found that a dose of salts when the temperature rises is much better than an antipyretic. When there is no prostration from numerous actions, I think it best for the bowels to be purged off and on for the first two weeks of the disease and even throughout the disease in most cases, purgatives may be kept up. Where stomach is sensitive with torpor of the lower bowel, enemas of warm water are of great service. I find that calomel in small dose, 1-16 of gr., with soda bi-carb. 1 gr., given every hour or two, kept up from twenty-four to thirty-six hours at a time, to be of much benefit by its antiseptic or alterative effect bringing about better secretions of the digestive tract. I use the calomel in this way after the first ten to fourteen days of the disease. Quinine I most invariably use in large dose in the beginning of

the disease; first seven days. If it has no influence over the fever I discontinue its use altogether save for its tonic effect in some cases. The "Woodbridge Treatment" I have never used, but am favorable to its modification. Certainly, so far as to small dose of calomel and thorough purgation in the beginning of the disease. After the first few days, when the fever has assumed its regular course, if there be any tympany, the tongue dry and indicates its use, I give turpentine and keep it up regularly throughout the disease. I also use it as stupes to the bowels. In some cases I have used salol with apparent good results, while in others, have used it with no benefit. Among many other remdies I have used nitro-muriatic acid, phosphate of soda, tincture of iodine and carbolic acid (1 to 2) and many other remedies. But first, last, all time throughout the disease, look after the lungs, heart, stomach, liver, kidneys and bowels. And see that the proper food is used with as little residual matter as possible and that the assimilation be carefully watched and the strength of the patient maintained. This is the most important, as has been my experience. And if your therapeutical remedies have not this in view then they are useless. I have found no specific or true remedies that never fail, but each case has to a certain degree to be treated as its own peculiarity demands. In conclusion let me ask, are the cases of continued fever, which we have in this locality, typhoid peculiar to this section; are they not continued malarial fevers, which has to run its course and is not influenced by cinchona salts, or is it typhoid fever modified by malarial infection, or the result of a combined infection? It is on this differential diagnosis I would like to be able to give a microscopical examination of the blood of a number of cases, such as we have in this locality, that it may enable us to tell which is dependent on malarial infection and those which are typhoid, or a combined infection. The time has come when every practicing physician should be prepared to make microscopical examinations of the blood, that the diagnosis in these cases may be made easy and positive.

DISCUSSION.

DR. O'HAGAN: I have not heard a paper on typhoid fever in which the advice was more salutary and eminently fitted to almost any variety of that fever which we generally meet. I think that the ideas advanced by Dr. Woodbridge, which favor elimination,

have more or less tinged the doctor's paper, and I think correctly, for notwithstanding I think that Dr. Woodbridge's treatment is utterly impossible to be carried out in this country for various reasons, nevertheless the principle underlying it is elimination and antiseptic. It seems as though the doctor might possibly gain something by hydro-therapy, in the use of water not only internally but externally, accompanied by friction. I have enjoyed the doctor's paper very much, and I think a patient would be safe in his hands if he had typhoid fever.

Chronic Gastro-Intestinal Catarrh.

By DR. WM. J. McANALLY, High Point, N. C.

Chronic Gastro-Intestinal Catarrh is by no means an infrequent disease, I realize its importance and am conscious of my inability to do justice to such a broad subject in this paper. But if I shall succeed in drawing out discussion then my labor is not in vain. These old dyspeptics of whom I shall speak have suffered a great deal and have been despondent and cross a long time. To relieve them is to win their lasting friendship and make perhaps more than one soul happy. This trouble may arise from a variety of causes, eating too much and too fast, use of too many cold drinks, poor and improperly cooked food, and of course various troubles in other parts of the body, as Cancer, Cirrhosis of the liver, Bright's Disease, etc. But of these later cases I shall not speak, my remarks shall be confined to those cases in which the cause may be removed. During the three years I have been practicing many interesting cases of Chronic Gastro-Intestinal Catarrh have come under my care. In the diagnosis and treatment of these cases no Ewald or other test meals have been given and no chemical or microscopical examination of the stools or stomach contents were made, because I did not have the necessary apparatus. But I arrived at my conclusions as to the cause and kind of trouble in these patients by observing their habits, food they eat, what agreed with them best, when they were in more distress,

whether the pain was continuous or not, the presence or absence of hunger, etc. What I have to say can perhaps be made more plain by citing cases. Miss J. B., a lady sixty, who had for a number of years been troubled with her stomach and bowels had, when I first saw her, been confined to her room for four months and could scarcely take any food without intense suffering and a little over her starvation diet would cause so much pain and burning in stomach and bowels beginning about one-half hour after eating, that she was compelled to take morphine.

All this time her bowels were moving from four to eight times a day, and containing much mucus, often streaked with blood. She was thirsty and would occasionally have some fever. Tongue was large and flabby, red at edges and white in the middle, all kinds of food, even water, would ferment and cause pain. Diagnosis, an anacidity. Caused by poor and improperly cooked food and the use of whiskey and tobacco. I believe it was anacidity because she never got hungry, and lean meats hurt her just as bad as the farinaceous food and the fermentation and pain began too soon after eating to be hyperacidity, and there was the vomiting of mucus. I did not think it was cancer or ulcer because the pain was not constant and did not begin immediately after taking food as is the case in cancer or ulcer but some twenty or thirty minutes thereafter.

TREATMENT.—Gave an ounce of epsom salts to start with, stopped all food except Valentines meat juice, milk and lime water every two hours, and a cup of hot water every morning, ordered a capsule of bis-subnit 12 grs., and silver nitrate one quarter grain, to be taken t. i. d. one hour after food and every night a capsule containing five grains sulpho carbolate of zinc and opii one-half grain, kept up this treatment for one week and she got along very well and began to be hungry. Then put her on fifteen drops HCl and ten drops tr. nux vom. in water three times a day before eating, and allowed eggs and lean meats and light bread with the milk, discontinued the Valentines meat juice, kept up the bismuth and silver twice a day two hours after meals. In about two weeks all the mucus had disappeared from the stools and her bowels moved regular twice a day, she could manage her food without distress, was gaining weight and has been getting along nicely ever since, but has had to continue the HCl. This long continued use of the acid has brought no evil results.

She is doing her house work and eats most anything, feels better, looks well and weighs more than she has in five years. I attribute these results to silver nitrate and HCl.

Have never gotten good from pepsin in these cases, and begin to believe like Prof. Hemmeter, of Johns Hopkins, that pepsin has absolutely no place in the treatment of these cases. He says it is a very rare thing to find pepsinogen absent from the gastric juice. But there will be no pepsin from the pepsinogen if HCl is absent. All that is needed to get the necessary amount of pepsin is to supply the HCl. Really I have very little use for the commercial pepsin at all, except when it is desired to digest food outside of the stomach. If HCl is absent there will be hardly any digestion done in the stomach. Meats cannot be digested at all. A short while after food is taken fermentation will begin in the stomach and even the starches which need no pepsin or acid for their digestion will be ruined and rendered useless. The organic acids formed by this fermentation will irritate the mucous membrane of the stomach and bowels and produce an unhealthy condition of the entire alimentary canal.

For this condition of affairs we can readily see the necessity of sweeping out the alimentary canal, (and nature has been trying to do this by the diarrhœa which we find present,) and then give antiseptics to prevent fermentation, and silver nitrate to produce a reaction and bring about a healthy condition of the mucous membrane.

Supply the acid and give strychnine to help the motor power of the stomach and the patient will improve right along. The vomiting in the case just mentioned was only once or twice a week, had it been worse I should have used lavage. Anacidity is a disease which may last for years, even a life time, and in different patients we see every degree of severity, it is more often met with and causes a great deal more trouble than hyperacidity, but some distressing cases of the latter are seen. B. D., male, aged 42, came under my care in January, 1898. Had for four years been suffering with hyperacidity, he was nearly always hungry, and the hunger was accompanied by burning, and an annoying sensation in the stomach, which was relieved by taking food or water, but would begin again in about an hour after eating, and would be worse than when the stomach was empty. He had been compelled to take bicarbonate of soda to stop this pyrosis. Lean

meats, eggs, and other proteids would prevent the burning being so severe, and a big meal of lean roast beef (and by the way he could eat the most of any man I ever saw) would entirely stop the burning for five or six hours, but an ordinary amount would not stop it entirely very long, though he never suffered so very much when he got a reasonable amount at each meal and took his soda. But when he ate a lot of potatoes and beans and only a little meat, and took no soda after eating, the burning would be so intense that he could hardly stand it, and the motor power of his stomach would get so strong from the stimulus the extra amount of acid furnished that the food would be regurgitated and nearly the entire meal would be spit up within an hour and a half. I gave him calcined magnesia, twenty grains after each meal, advised him to eat largely of lean meats and eggs, and to increase the magnesia when eating vegetables. Magnesia is much better than soda in these cases, as there is no gas formed by the action of the gastric juice upon it. He has been getting along beautifully, and has had no diarrhœa and no tenderness over his bowels. The meat uses up the acid while it is being digested, and Prof. Hemmeter says this kind of treatment, will, after a while, stop the formation of so much acid in the stomach, and he has fully demonstrated the fallacy of the old theory that an alkali in the stomach will increase the amount of acid secreted. Thus we may have many a dyspeptic, and even the old alcoholic stomach may be repaired and made to do good service again, but where there has been much destruction of mucous membrane that the patient's digestion, like the one-legged man's walk, will never be perfect again, but let us give him his crutch.

Meningitis.

By JNO. E. S. DAVIDSON, M. D., Lowesville, N. C.

The most interesting and most important disease in early life is that which is now designated meningitis. The mortuary statistics that I have gathered up show that it is the cause of death in from one to twenty-five to one in fifty of the entire number of

deaths in childhood, in different years the proportion varying some. Such a disease as this should attract the attention of all physicians most earnestly.

Cerebral meningitis may affect the *dura mater* or *pia mater*. In the first case it is pachy-meningitis, and the second lepto-meningitis. It may be *acute* or *chronic*. Pachy-meningitis is rare in early life, except from traumatism or as a lesion in some specific disease, such as syphilis, therefore I will only mention it.

Lepto-meningitis, on the contrary, is very frequent in childhood. As to its pathology there are two general forms—tubercular and non-tubercular. The former usually affecting the base and the latter the convexities of the brain.

It is not the purpose of this paper to discuss cerebro-spinal meningitis or fever as its cause is a microbe, and it should be associated with other diseases of the infectious class. I will discuss only the non-tubercular forms of cerebral meningitis. This is sometimes called purulent meningitis, but this designation is not proper, for some cases have no pus, and on the other hand we sometimes meet with purulent exudation in the tubercular form.

The term meningitis as used in this paper then will refer to the non-tubercular form of lepto-meningitis. Meningitis in its acute form is a disease which may attack robust as well as debilitated children. It may occur at any age, but is rare in the first year of life, and most common in the middle period of childhood.

Meningitis is generally secondary. Some rare cases have been reported where the disease was apparently primary. I myself have never seen a case of non-tubercular meningitis which was undoubtedly idiopathic; at any rate the great majority of cases are secondary. In my experience I have found meningitis most frequently of traumatic origin, or arising from some disease in the ear by the inflammation extending through the petro-squamosal suture to the cerebral meninges. You will find a small number of cases of meningitis caused from the specific microbe of such diseases as scarlet fever, measles, erysipelas, pneumonia, rheumatism, syphilis, chicken pox. The morbid anatomy differs considerably in different cases.

The inflammation in a case of acute meningitis is apt to extend downwards and to involve the *pia mater* of the cord. In mild

forms there is an abundant production of cells resembling the cells which coat the surface of the membranes and fibres which make up the *pia mater*. The cell growth is general involving the *pia mater* over most of the brain surface. The inflammation is one which does not result in the production of pus, or serum, or fibrin, but of new connective tissue cells. This form of meningitis has been called acute cellular meningitis; it is of right frequent occurrence. It has the ordinary clinical symptoms of acute meningitis.

Another form of acute meningitis has been termed by some pathologist the exudative, because it is characterized by an accumulation of serum, fibrin, and pus, chiefly in the meshes of the *pia mater* and along the walls of the blood vessels. The absolute quantity of the exudation varies greatly. In some cases death may be caused with so slight a formation of the exudate that only by the use of the microscope can the pus cells and fibrin be detected; on the other hand the exudation may accumulate to such a great amount as to flatten the convolutions of the brain. You will generally find the exudative form of meningitis following ear diseases, the portion of meninges nearest the ear, therefore being affected most, the inflammation sometimes also leading to abscess. If the meningitis is caused from exposure to the sun's rays, the inflammation is at the summit of the brain. The extent of the inflammation varies greatly in different cases, and the results in some cases is strong adhesions between the *dura mater* and the *pia mater*.

Without describing symptoms and treatment in general, I will mention three cases that came under my care.

The first case that I will report is a little boy, four years old, who fell and struck the back of his head. He did not complain of much pain for two days, when in the evening I was sent for and on my arrival found his face flushed and vomiting a great deal, and was restless and constipated. On the next day the symptoms increased in severity. The pupils were equal and reacted very well to light. He was very restless, but showed no evidence of pain. Eyes fixed. Feet and hands cold. About the third week he began to improve and continued to do so.

Treatment was simply to keep him very quiet in a dark room. His diet was carefully regulated. Calomel given in ten gr. doses until bowels moved. Six grains of bromide of potash and

chloral was given several times a day. The iodide of potash was given three times a day.

Recovery took place in about two months. My diagnosis was traumatic non-tubercular meningitis.

CASE 2d.—The next case that I report is one of meningitis, in a child twelve years old. He was healthy at birth, and remained so, and never had any disease except measles. I was called to see him January 30th, and diagnosed it meningitis.

This attack, in all probability, was produced by a fall he had at school four days before, in which he struck the front of his head over left eye. Later, on the day of the fall, he began to complain of pains in his head and to vomit. He was very fretful, with heavily coated tongue, and lay in bed protecting his eyes from the light. Pupil of left eye was dilated and would not contract to light; afterwards, both become dilated. The bowels were constipated and he did not care for food. Temperature 105 deg. the 5th and 6th day after the fall, pulse 85. Temperature came down shortly to about 100 deg., and remained about that for four weeks. He seemed to remain about the same, except he was losing in weight. About the fourth week he became delirious. The delirium was sometimes active, and then it would disappear and he would recognize his parents. He was very cross in the intervals of the deliriums, and would roll his head from side to side. He never had convulsions, but later on had paralysis of both upper and lower extremities.

Treatment was to keep him perfectly quiet and the room dark to protect his eyes. He was given the bromide of potash and chloral to quiet him. Calomel and the iodide of potash was also used. He died about the end of the fifth week.

CASE 3d.—The next case that I will report is a little girl, three years old, whose parents had always been healthy, and the patient's health in the past had been good. She was in a habit of spending a great deal of her time in the hot sunshine. The first symptoms noticed were that she was fretful without any apparent cause, and complained of pain about the summit of the head. Later on temperature rose and vomiting came on. About the third week pupils became dilated. She got very restless and dreaded the least noise or light. Bowels constipated. Tongue furred and heavily coated.

Treatment:—Gave calomel in 1-10 grain doses to move the

bowels. Used rubber coil to lower temperature. Bromides and chloral given several times a day.

About the sixth week she commenced to improve, and about the third month was apparently over the attack.

My diagnosis was non-tubercular meningitis, caused from exposure to the sun's rays.

Pernicious Malarial Fever.

By DR. R. E. ZACHARY, Wilmington, N. C.

Certain departures from the ordinary types of malarial fever are termed pernicious because of their great tendency to inflict more than usual systemic danger and damage to life upon those who suffer such attacks.

The word pernicious is used in its common English sense of being hurtful or injurious. This disease is primarily due to the same poison which produces simple, intermittent attacks.

The extreme danger of the attacks and the awful suddenness with which they often occasion death form striking contrast with the more typical forms of malarial fever and appear fully to justify the use of the qualifying adjective, pernicious.

There are several types to be grouped under the term pernicious, which differ widely in their mode of inflicting injury, and these types are classed by many of the different authors as follows:

First—Algid or congestive form.

Second—The comotose form.

Third—The hemorrhagic form.

It is not within the scope of this paper to treat the subject of pernicious malaria in extenso, either as to its history, causation, or its different types.

Having had more experience with the comotose form. I will speak of that alone.

My object is to try to impress upon my hearers the awful suddenness with which this disease often causes death, and the great necessity of immediate treatment.

The term comotose is applied to certain cases of pernicious malarial fever, because they present coma as a marked symptom. This disease is of frequent occurrence in the intensely malarious districts of Eastern North Carolina, in a low, marshy localities along the rivers.

It seems to be limited almost to the laboring classes, especially to those working in lumbering mills along the river banks, in rice fields, and in a low, marshy districts generally.

In my experience a continuous residence of from six months to two years, in one of these intensely malarious districts, with frequent malarial attacks, will produce the condition in which we have pernicious malaria. Those drinking surface water seem to be the most liable.

The disease lasts from two to six days and if the greatest care is not taken it will end fatally.

Being connected for some time with the City Hospital of Wilmington, a charitable institution, I had ample means for the study of pernicious malaria, in its last stages, for it is a known fact that the poorer classes of people seek a hospital as a last resort, and many times the patient is given up to die before being brought to the hospital, and it is in the later stage that I had some success in treatment.

As the symptoms of this disease are familiar to most physicians, especially to those from Eastern Carolina, only a brief outline need be given.

Prodromic symptoms are usually present, the most common are irregular chills, dull pain over kidneys, and aching of all the extremities, and a general tired feeling, bowels constipated, tongue badly coated, cold sensation. An attack may or may not be ushered in by a chill, but in its more serious form the chill is a conspicuous feature, being severe and often rises to 105 degrees or 106 degrees F., then follows the most intense cerebral disturbance, a rapidly developing coma. The unconsciousness may persist for from twelve to twenty-four hours or the patient may sink and die. After regaining consciousness a second attack may come on and prove fatal.

The following report of a case goes to prove its fatality :

R. D., colored, male, age 22, an employee of Cape Fear Lumber Co., of Wilmington, N. C., on May 2d, 1899, left the mill sick, was seized with a chill shortly after reaching home and

became unconscious with a very high fever. A physician was not summoned until twenty-four hours later, when the patient was sent to the hospital, where he died on the morning of May 4th. This is just the history of many cases.

The doctor is usually sent for too late. Out of ten cases of the comotose type of pernicious malaria brought to the Wilmington City Hospital during the summer of 1898, only one died, this one reached the hospital late one evening and died early the next morning.

The following is a report of one of the cases that recovered:

W. E., colored, male, age 42, was brought to the hospital June 12th, 1898. He had been living in a low, marshy district, had been having irregular chills and drinking surface water. He was stricken down with a chill June 11th, and the next morning was sent to the hospital, unconscious, and with temperature 105 degrees F. He was in a comotose condition, and by two reputable physicians was pronounced to be in a dying condition. Having diagnosed the case as pernicious malaria, and knowing the system to be full of malarial poison, I thought unusually large doses of quinine would bring the patient through, I nursed the case myself, not willing to trust him to a nurse. At 12 m. he was thought to be in a dying condition. At 1 o'clock, p. m. gave him, per rectum, sixty-five grains of quinine in solution. At 6 p. m., three ounces of rye whiskey in one pint of hot coffee per rectum, strychnine sulph., gr. 1-50, every two hours for six hours, hypodermically. Every hour the patient was sponged with alcohol and an ice cap kept to the head continually. The bowels were constipated, so at 10 p. m. calomel, grains 10, ext. colycinth comp., grains 10, ext. hyoscyamus, grains 2, were placed on base of tongue and caused to be swallowed by tablespoonful of water trickled over the powder.

At midnight, temperature had fallen to 100 degrees F., and patient conscious. At daylight he had a good action, and at breakfast time was able to sit erect in bed and drink a glass of milk. The quinine did not seem to effect the nerves of hearing. Ten grains of quinine was given him three times a day for three days, and on the fourth was discharged well.

The other cases were all treated in very much the same manner and with the same good results.

Patients suffering with pernicious malaria in the first stages

were treated with grains 10 doses of quinine every four hours, giving the same purgative as in the case related above.

Report of a Case of Encephaloid Carcinoma of the Lung with Tuberculosis.

By CHAS. L. PEARSON, M. D., Ahseville, N. C.

Mr. K., age forty-one years, male. Occupation, stage electrician. Family history, mother lived to an old age, father was killed in the war of the rebellion, grandmother on mother's side died of cancer, two sisters of his mother died of cancer.

The history of the patient prior to the time he came under my care was as follows: On November 5th, 1898, patient began to feel pain in left side, pain continued more or less until December 26th, when he was compelled to stop work for about one week. On January 2nd he resumed his work but was still suffering considerable pain. On January 16th patient took to bed suffering severe pain and considerable temperature as reported by his wife. On January 25th patient was taken to Maryland General Hospital, Baltimore, and on January 31st was apirated for supposed pleuritic effusion, result one-half pint amber-colored fluid was withdrawn. On February 10th he left hospital and resumed his work as stage electrician, traveling from Baltimore, Md., to Cleveland, Ohio. He continued at his work for about three weeks when the pain returned, also having temperature, a dry cough, and night sweats. After consulting Dr. Hamilton South, of Detroit, Mich., who diagnosed an existing tuberculosis he was advised by him to come to Asheville. Patient consulted me on March 17th and at that time his temperature was 101, pulse 115, respiration 24. Patient complained of pain over the left lung, was suffering considerably from dyspnœa, also a dry hacking cough and from night sweats.

On physical examination I found on percussion there was complete dullness, posterially over the left lung as far down as the seventh rib, below that region the percussion note was per-

fectly flat. Anteriorly the percussion note from the apex to the nipple was dull and from nipple to the diaphragm was tympanic; auscultation: bronchial respiration over apex anteriorly, over remainder of lung vesicular murmer was entirely lost. Tactile fremitus was entirely absent. The heart was displaced 3½ inches to the right, the apex beat to the right of the medium line and in the epigastric region. Patient was very little emaciated, had a good appetite, but had great difficulty in retaining his food. He had a dry persistent cough except in the morning when he raised considerable prune juice expectoration. Up to this time he had had no hemorrhage. His sputum examination showed from four to fifteen bacilli to the field. His condition remained unchanged until April 5th when I called Dr. F. T. Merriwether in consultation and we decided upon an exploratory aspiration. No fluid was obtained and the results were negative. On April 10th patient had a severe coughing spell during which he coughed up a piece of necrosed lung about one by one-half inch. This was accompanied by quite profuse hemorrhage. During his entire illness since March 17th patient had profuse sweats and showed every symptom of being septic and while we were not successful in finding any pus or fluid of any kind at our first aspiration we felt confident from his condition and the physical signs that there must be pus confined either in the plural cavity or within the lung. On April 18th Dr. C. P. Ambler was also called in to the case, and on the 19th we decided upon another exploratory aspiration, at which time the needle entered a cavity from which we obtained several ounces of bloody fluid, consisting of broken down material which under the microscope showed no bacilli. After our first aspiration, finding no fluid of any kind, we suspected a malignant growth. From April 19th his temperature decreased, while his pulse and respiration steadily increased in frequency. His dyspnœa increased and about April 25th he developed symptom of pressure on the œsophagos with great difficulty in swallowing and the last few days of his life he was practically unable to swallow. The pain particularly in the region of the scapula and spine grew steadily worse so that we were compelled to resort to large doses of morphia. Patient died on May 2nd.

AUTOPSY.

Left lung firmly adherent to diaphram and chest wall over its whole extent. Left lung three times the normal size and perfectly solid except a large cavity. The lung itself was filled with nodules making up the tumor mass. Right lung near its root was found one small tumor about the size of a walnut. Remainder presented a healthy appearance. No other signs of a malignant nature were found in any other organ. Dr. F. T. Merriwether kindly mounted a specimen saved and after subjecting it to the test of the microscope found the nature of the tumor to be an encephaloid carcinoma. Dr. Ambler also took a specimen of the contents found in the cavity and examined for and found tubercle bacilli.

REPORT OF THE SECTION ON PATHOLOGY AND MICROSCOPY.

A Study of the Bacteriology of Specific Urethritis.

By EUGENE B. GLENN, M. D., Asheville, N. C., Chairman.

THIS is a study which is bound to interest the general practitioner as much as any other with which we have to deal to-day.

By the gonococcus alone, or aided by other pyogenic organisms, serious and even fatal results may follow its attack on the kidneys, eyes, heart and its membranes, and the coverings of the spinal cord, brain, etc. Taken as a whole, we are certainly warranted in saying that the infection of the gonococcus is one of the most formidable and far-reaching infections by which the human race is to-day attacked.

Recently I had the opportunity of seeing a case of specific urethritis in one of the Philadelphia hospitals, of twenty-five years' duration. The patient had an organic heart lesion, produced by this disease, and a well-known physician, Professor J. C. Wilson, said in speaking of this case that he was more impressed every day with the truthfulness of the saying he heard when he was a young man that "gonorrhea is a greater menace to society and to the patient than is syphilis." It is regarded very lightly by the laity, and we often hear the remark made by liars, fools, or both, that they care no more for a case of gonorrhea than a bad cold, and that five cents' worth of this and ten cents' worth of that in a pint of water will cure them in a week. But very frequently we have these patients come to us after having tried all the "sure cure remedies" in the land. He tries physician after physician until the physicians all become disgusted

and the poor sufferer gives up in despair, and sometimes death is produced by some lesion of kidney, nervous system, uterine appendages, etc.

In order that we as physicians may be able to treat this terrible disease more intelligently it is necessary for us to know something of its bacteriology.

It wasn't until the year 1879, just twenty years ago, that the micrococcus now known to be the cause of gonorrhea, and often spoken of as the gonococcus, was first described by Neisser. Six years later it was cultivated on blood serum by Bumm. Earlier announcements were made of the obtaining of pure cultures on peptone-gelatine and other media, which was certainly erroneous, because it is now known that it does not really grow on such media.

The relationship has been so conclusively established to the disease, by means of inoculations and cultures in the human subject, that there is no room to doubt the diplococcus of Neisser being the specific cause of gonorrhea.

The organism is a small micrococcus of 0.8 to 1.6 mm. in length and 0.6 to 0.8 mm. in diameter, often occurring in the diplococcus form, and appears somewhat biscuit-shaped when seen under a high power.

These organisms are found for the most part within the leucocytes, in the pus cells of gonorrhea in both male and female, especially after the discharge becomes purulent ; but when the secretion is glairy, in the earliest stage, a considerable number may be found adhering to the surface of desquamated epithelial cells or lying free.

The gonococci gradually diminish in number as the disease becomes more chronic. They may be found in considerable numbers in long standing cases.

When the process of degeneration begins in the cocci, they have a spherical appearance, of various sizes, some being swollen considerably, lying singly or in small groups. They are found in some cases in the well known "tripper faden," in the urine, which is made up mostly of pus cells, epithelial, and small amounts of fibrin. Bumm cultivated pure cultures from gonorrheal pus, and carried the organism through twenty successive generations, and then introduced it with positive results in the healthy urethra of men.

After the first few days the discharge will be most likely to contain streptococci and staphylococci.

Bosc mentions fourteen other organisms besides the common staphylococci which occur in pus. And just so long as the "tripper faden," or pus filaments, are found in the urine, it is possible for the gonococci to be present; and the gleet that follows often contains the organism. The gonococcus is infective on any mucous surface, and has an extraordinary affinity for that of the eye. When introduced into the eye, unless treated within forty-eight hours, it may cause its loss, hence the importance of cautioning the patient of its danger. The patient may spread contagion as long as the gonococci persist. Sometimes they are latent in the urethra and set up a relapse when the patient takes some irritating substance, such as alcohol, etc.

The gonococci are hard to kill, taking 60 deg. C. to destroy life; and they also withstand drying fairly well, as was demonstrated by Kratter when he found them present on washed clothing six months after the original soiling, and found they still took the stain well. The cultivation of the gonococcus requires considerable bacteriologic skill, as the suitable media and conditions of growth are restricted.

"Blood agar," solidified blood serum, urine agar and Wertheim's medium, which consists of one part of fluid serum, added to two parts of liquified agar at a temperature of 40 degrees C., and allowed to solidify by cooling, are the most suitable media.

The period and active growth and duration of life are somewhat longer on the medium of Wertheim.

Turro pointed out the fact that the gonococcus may be cultivated in acid urine and gelatine containing acid urine, wherein the latter the gonococci grow near the surface, while the pus cocci sink deeper into the medium. He also asserts, what was ordinarily presumed not to be true, and that is the communication of the disease to animals; and this fact was demonstrated by using gonococci grown on acid gelatine and readily communicating urethritis to dogs without any *lesio continni* necessary.

To obtain cultures, take some pus on the loop of a platinum needle and inoculate one of the media above mentioned by leaving small quantities at different points on the surface. The young colonies are visible often within twenty-four hours and

almost always within forty-eight hours after inoculation. They usually reach their maximum size on the fourth or fifth day and are usually found dead on or before the ninth day. It is necessary to sub-culture every three days or their viability is lost. But growth may be maintained indefinitely by successive sub-cultures at short intervals, and the organism gradually flourishes more luxuriantly. At the same time their microscopic appearance will show a marked tendency to undergo degeneration. A pure culture of the gonococcus assumes an appearance similar to a mulberry, and is of a yellowish white color. A watery solution of any of the basic analine dyes stains the organism rapidly and deeply. It is probably stained best by Loeffler's methylene blue. It is easily decolorized, and an important point in the microscopical examination is that it completely loses its stain by Gram's method. The organisms are generally found within the pus cells, and this should always be sought for as one of the diagnostic points, because it has been shown by some observers that urethritis is sometimes caused by other organisms, such as the bacillus coli communis and the staphylococcus pyogenes.

But position in the cells is not positively diagnostic. Since cocci resembling the gonococci have been found in the urethra, we must have added to shape and position the refusal to stain by Gram's method before we can say positively that the cocci found in the urethral pus are gonococci. The organism may be separated from fluids which contain a number of other organisms by Wertheim's ingenious method of plate culture of the gonococcus. The medium consists of a mixture of equal parts of human blood serum and agar (two per cent.) This is rendered sterile and put in suitable quantities in two or three test tubes and brought to 40 degrees C. These are then inoculated in the same manner as gelatine tubes for ordinary plates. Now an equal amount of ordinary agar, which has been allowed to cool to 40 degrees C., is added and thoroughly shaken up and quickly poured out on Petri's dish. This is allowed to solidify by cooling and then incubated at a temperature of 37 degrees C

At the seat of all true gonorrheal infection and gonorrheal discharges in the urethra the gonococcus is invariably present. This has been repeatedly demonstrated both by culture and by the microscope. That the disease is always transmitted directly by contagion is a clinical fact borne out by the description of the

conditions of growth in culture, from which it seems practically impossible for its life outside the body in natural conditions. Repeatedly such experimenters as Wertheim, Bumm, Steinschneider, and others, have made inoculations of pure cultures on the human urethra, both of the male and female, and the disease resulted with all its characteristic symptoms. Since the casual relationship has been so completely established by such men as mentioned above, it is interesting to note how the character of the natural disease agrees with the conditions of growth and pathogenic effects of the organism. Wertheim found a small amount of suppuration and local peritonitis after the injection of pure cultures of the gonococcus in the peritoneal cavity of white mice, the organism being found in large numbers in the leucocytes. He found them penetrate the peritoneal lining and stop in the sub-endothelial connective tissue, showing little or no power of proliferation, soon disappearing without the inflammatory condition spreading. Other experiments, like the injections of pure cultures in the joints of rabbits, dogs, guinea pigs, etc., show that the gonococci rapidly die out after causing an acute inflammation, which, however, soon subsides. These experiments all show how little power the organism has of multiplying and spreading in the tissues even when present in large numbers, and that it produces only a limited amount of inflammatory change in these animals. In the human urethra the gonococci penetrate the mucous membrane between the cells, and cause a loosening and desquamation of many of these epithelial cells, and at the same time inflammatory reaction in the tissues below, attended by a great increase of secretion.

The leucocytes take up a large number of the gonococci. But it must be noted that though there is such an abundant phagocytosis, the cocci within the leucocytes are usually quite healthy in appearance, that the establishment of the phagocytosis is not followed by a rapid cure of the disease. The organisms also penetrate the subjacent connective tissue, and are found with extensive leucocytic emigration around the lacunæ, when they are contained in great numbers in the leucocytes which constantly carry the organisms to the surface and discharge them. But they are able to maintain their footing by multiplication, till such a time as the disease comes to an end naturally.

At present we have no data for demonstrating whether the

gonococcus is present in the prostate and seminal vesicles in the acute stage, in cases where there is considerable degree of inflammation. The same can be said of cystitis and orchitis in the early stage, before other organisms appear in the urethra during the more chronic stage. Though it is possible for the bacillus coli and the various pyogenic cocci, so often present in the urethra, to extend back or be carried back by means of a catheter to the bladder and set up cystitis, the bacteriology of these conditions and of buboes has not been fully demonstrated yet. But we know that these conditions are sometimes produced by pyogenic organisms and varieties of diplococci when present in the urethra in abnormal conditions and the gonococcus not present. The gonococcus is almost invariably situated in the urethra, in the female when infected with this disease, and next in frequency is the cervix uteri. The gonococcus has been found in the Bartholinian gland, body of the uterus, Fallopian tubes, peritoneum, etc., producing their usual destructive work. I wish to emphasize especially the harm done in the Fallopian tubes, because it is the most frequent cause of pyosalpinx (Montgomery and Krusen). The gonococcus has been cultivated from cases of arthritis and inflammation of tendon sheaths following gonorrhea, by such men as Neisser, Lang, etc. The gonococcus has been cultivated from a pleuritic effusion along with the arthritis in the same individual. One case is reported by Bordoni-Uffreduzzi in which the gonococcus was cultivated from the affected joint, and afterwards produced gonorrhea in the human subject by an inoculation with the cultures obtained. Gonorrheal endocarditis has not been absolutely proven by means of cultures. Though organisms have been found in the vegetations which, with reference to staining, position in the leucocytes and microscopical appearance, corresponded to the gonococcus, Leyden and Michealis failed in their experiment to obtain a culture on the media used ; but from the fact that no organism was obtained on the media, it favors the view that the organisms were certainly gonococci.

I wish to express thanks to Dr. Randle C. Rosenberger, Demonstrator of Bacteriology in the Laboratories of the Jefferson Medical College Hospital of Philadelphia, for his aid in the study of the microscopical characters, cultivation and distribution in the tissues of the gonococcus in specific urethritis by a number of experiments in the laboratory.

DISCUSSION.

By request Dr. E. C. Levy, of Richmond, Virginia, Professor of Bacteriology in the Medical College of Virginia, responded as follows :

Dr. Glenn asked me to say a few words on this subject. He has put me in a very embarassing position, because in his paper he has fully covered the ground. There remains scarcely anything to say. I do wish to say, however, a few words, which I hope are pertinent enough to the subject under discussion. I think, that the diagnosis of gonorrhea bacteriologically is not always easy and satisfactory. Dr. Glenn has fully called attention to the points we have to go on. They are, first, the morphology and grouping of the parasite, second, its situation in the leucocyte, and third, its peculiar staining properties. Gramm's method, I think, is universally admitted to be a very unreliable thing unless we have exact data—the length of time in which the specimen has been subjected to the stain, to the iodine solution and to the alcohol. Without that Gramm's method is not to be relied upon. Where these organisms are abundant the cases are in most instances very clear clinically. In the difficult cases, and, unfortunately, those in which it is really important that we should have some aid, gonococci are few in number. Those cases are generally cases of long standing, very mild cases, presenting a medico-legal aspect. The most difficult case I have encountered was an inflammation of the eye of a little boy about eight years. The child was the son of a gentleman of high standing in Richmond, and everyone was very loth indeed to say that this child had gonorrheal opthalmia. Only after examining six cover-slips was I able to find a single pair of micrococci, which were situated within a leucocyte. Of course I could not use Gramm's staining. I had to give finally a merely provisional diagnosis that I thought it very probably gonorrheal.

There is one point which I have found very useful in diagnosticating this trouble where the secretion is scanty, and that is by the injection of a weak solution of nitrate of silver, five grains to the ounce. Following that there is ordinarily an increase in secretion, and on several occasions I have been able to demonstrate the gonococci in secretion obtained in this manner where without this it had been impossible to do so. I have forgotten who was the originator of this method. I have nothing further to say on this subject, because, as I said, Dr. Glenn has fully covered the ground.

REPORT OF THE SECTION ON OBSTETRICS.

Antiseptic Midwifery.

By W. W. McKENZIE, M. D., Salisbury, N. C., Chairman.

IT has long since been ascertained that puerperal septicæmia is due to a poison which enters the system through the genital tract, as such or is produced there by a substance coming in from without.

It is also a settled fact that in almost, if not in all cases, by the local use of certain measures and drugs, we can prevent puerperal septicæmia. It can furthermore be said that the producers of this poison are certain microscopical fungi, which have been found on the wounds of the genital canal, in the blood circulating in the veins of the living patient, and after death in almost all the great cavities, exudations, etc. The most dangerous of these, it is said by those who should know, are the round micrococci in chain-like groupe, but beside them are found single and double round micrococci and the common rod-shaped bacteria of putrefaction. Chains of micrococci similar to those of puerperal septicæmia are found in erysipelas, scarlet fever, diphtheria and pyemia, and so far it has not been possible to differentiate them in these clinically different diseases.

The poison causing puerperal septicæmia may be derived from different sources, such as patients suffering from the same affection; patients suffering from suppuration or decomposition of tissue; patients suffering from zymotic diseases, and from putrefying substances.

The contagiousness of puerperal infection is universally admitted. The only mooted point is whether it is essential that the microbes be carried from one patient to another on solid objects, or whether they may float through the air.

That the source of puerperal infection may be suppuration was pointed out by Semmelweis as early as 1847. Students who had examined a patient with a cancerous ulcer of the uterus caused puerperal fever in and death to fourteen women, and the case of Dr. Rutter, of Philadelphia, who suffered from ozæna and had 45 cases of puerperal septicæmia in his own practice, in one year (1843), is one of the most remarkable instances of this kind. It is easy to understand now how by touching his nose with his fingers, Dr. Rutter brought staphlococci and streptococci into the vaginia or the uterus of his unfortunate patients. A French physician who had delivered eight hundred women without the slightest infection, was seized with suppurative adenitis, for which he wore a drainage tube. Within three weeks he had three cases of puerperal septicæmia. A dentist, Dr. Redley, called attention to diseased teeth in doctors and nurses as a possible source of puerperal infection.

All inflammatory puerperal diseases are due to infection, such as cellulitis, metritis, and local peritonitis, the proof of which is, that they almost disappear and entirely change character, when the antiseptic occlusion treatment is used. If no poison from without found its way into the body of the pregnant or puerperal woman, few of them would be sick after delivery. In the vast majority of cases the infection takes place by absorption through the wounds of the genital canal, but not exclusitely. In most cases the poison is brought into direct contact with the genitals by the hands of the doctors, midwives or nurses; by instruments, sponges, rags, cotton, oakum, or other substances, but it can quite as well be suspended in the air of the rooms. Dupaul reported the case of a pupil-midwife who while washing the genitals of a patient affected with puerperal infection, felt an unpleasant sensation, was taken sick in the evening, and died on the third day with all the symptoms of the most characteristic puerperal fever. The diagnosis of puerperal fever was confirmed by the autopsy ; she was found also to be a virgin and not menstruating. The natural inference is that she inhaled through the lungs the poison that caused her death. Such a case may be unique, but it ought, nevertheless, to make us a little reserved in our expression about the way the poison of the puerperal septicæmia enters the system.

The infection will, of course, be most likely to take place dur-

ing the manipulation of delivery, but it may likewise occur before and after. Thus we sometimes, although rarely, find fever before delivery, and, on the other hand, septicæmia may develop at a period when, as a rule, all danger is passed.

The mortality from puerperal fever before the use of antiseptics in midwifery, was simply enormous, rate being about 10 per cent., but now, since the adoption of proper antiseptic measures it is only ½ of 1 per cent. Before the introduction of antiseptic measures puerperal septicæmia used to reign in so-called epidemics. With our present knowledge we can, as Fritsch aptly puts it, "as little speak of an epidemic of puerperal fever as of an epidemic of gun-shot wounds the day after a battle."

I will be brief in indicating the historical development of antiseptic midwifery. The first who understood the septic nature of puerperal fever, and instituted an antiseptic prophylaxis (by means of chloride) was Semmelweis, of Vienna, in 1847. Still our present highly developed antisepsis is not derived in a direct line from him. It was first when Lister, building on the researches of Pasteur, had created antiseptic surgery (1866) that Stadfield (1870) tried to adapt his treatment with carbolic acid to midwifery, and he was soon followed by Bischoff, of Basel, and Fritsch, of Halle. From that time the use of carbolic acid in obstetric practice spread rapidly over Europe and America. But another period was inaugurated when Tarnier introduced bichloride of mercury, which he recommended in a paper read before the International Medical Congress in London in 1881, and this treatment received new impulse through the experiment of Koch, of Berlin, and the introduction of it into surgery by Schede, of Hamburg.

The bichloride of mercury, as a preventive and curative agent, was then introduced (1883) in many lying in hospitals. In America it was first introduced by Garrigues in the New York Maternity Hospital on the first day of October, 1883.

This is the chief drug used by obstetricians, but some still prefer carbolic acid, while others use nothing. The latter consequently are continually furnishing the undertakers with plenty of material. I know of a practitioner who, during the last six months, lost five cases—two the same day—from puerperal fever. This practitioner pretended to use antiseptics, but he didn't use them right. There is a right way and a very wrong way to do

all things. In this case the wrong way was the easiest and seems to have been used to perfection.

I know of still another physician who lost four or five cases in succession. I am glad to say that neither of the physicians live in my town.

Insurance reports show that of all deaths in women between the ages of nineteen and twenty-nine, more than eighteen per cent. and between twenty-nine and thirty-nine, thirteen per cent. are due to puerperal causes. From sixty-five to seventy-five per cent. are attributable to sepsis. It is fair to assume that these statistics have to do almost entirely with a class who are delivered outside of hospitals. Thousands of invalid mothers to-day owe their impaired health to the milder grade of sepsis in childbed. Now are we going to allow this to continue when we can prevent it? Certainly not. There are a number of physicians to-day, who, when you mention antisepsis and asepsis, turn their noses up with disgust and say, "nonsense, there is nothing in it." But I am glad to be able to say that the majority of physicians do use antiseptic measures, consequently we rarely hear of a case of puerperal septicæmia. Only one of my patients ever suffered with this terrible disease, and she was one of the contrary kind. There was a slight laceration and she would not let me repair it, nor allow the antiseptic douches to be used, so she died very promptly on the ninth day after confinement.

Coming now to the preventive treatment, I will confine my remarks to private practice, as we of course cannot do everything as neatly, etc., as they can in hospitals and our patients have to be treated at their homes. But we can use the same antiseptic precautions if not as neatly, as in hospitals. In well-to-do families we should choose a large, airy, sunny room, and as far as possible from the water closet. In the dwellings of the poor you will have to do the best you can. Select the best room in the house and have the best ventilation possible. In my obstetric bag I always have a jar of green soap, bichloride of mercury tablets, carbolic acid, a sterilized apron and Kelly pad (also previously sterilized), nail brush, fountain syringe, forceps, scissors, sutures, needles, ergot and chloroform. Upon arriving at my patient's house I proceed at once to scrub my hands and arms well, having my sleeves rolled up above the elbow, and then bathe them in bichloride of mercury 1-2000. I have the nurse to do the same.

Next I direct the nurse to give her an enema, then have her to bathe all parts liable to be touched during the delivery with bichloride solution. I then give her a vaginal douche whenever patient has leucorrhœa. I make as few examinations as possible, and always before and after each examination I bathe my hands in a 1-2000 sol. bichloride of mercury which I always have in a bowl or basin near me. I have the Kelly pad placed under patient after the nurse has bathed her, as I have before mentioned. Placenta should be expelled by Crede method when possible, so as to avoid introducing the hand into uterus. When placenta is retained be careful to thoroughly disinfect hand and arm immediately before attempting to remove placenta. Be sure to remove every particle of after birth, as in this way puerperal septicæmia will develop immediately. Whenever summoned to case of labor after attending a case of sepsis, such as erysipelas, puerperal fever, etc., besides using the ordinary antiseptic measures, you should use the permanganate method. By it the hands, it is claimed, may be rendered practically sterile to culture tests. It is as follows: First, the nails are cut short and carefully cleaned; second, the hands and forearm are scrubbed for three minutes with soap and water. The brush before using is sterilized by steam and the water, which is as hot as can be borne, is frequently changed. The soap is rinsed off with plain water; third, the hands are next immersed into a warm solution of permanganate of potassium and are scrubbed with a sterilized swab. Boiled water should be used for the solution, which should be saturated; fourth, the hands are next held in a warm saturated solution of oxalic acid in boiled water until permanganate stain is entirely removed; fifth, after rinsing in sterilized water, the hands are immersed for two minutes in a 1-500 mercuric chlor. sol. After this method any physician can safely attend labor cases. After delivery if there is a laceratation repair it immediately, using prepared silk, silkworm gut or silver wire, as they are less apt to cause suppuration along the needle tract. Use catgut for buried sutures. Sutures should be removed on eighth or ninth day. After delivery you must again thoroughly disinfect your hands your hands and arms, remove placenta and disinfect again as before, then have soiled parts of body thoroughly cleaned at once with antiseptic solution; her linen if necessary should be changed and all blood-stained articles removed from bed. Bathe genitals thoroughly with antiseptic

solution, using a piece of sterilized gauze or towelling. After cleansing, the vulva is covered with an antiseptic dressing. They are not employed as occlusion dressing. Their object is rather to promote cleanliness of the external parts, thus limiting the danger of infecting the passage from the proximity of the decomposing discharges. Should catherization be required after labor, care will obviously be needed to prevent infection of the vaginal wounds and abrasions, but this is not all—cystitis frequently results from infectious materials being carried into the bladder during catherization. Pyelitis may result by the extention of the septic process from the vesical mucosa through the ureters. To prevent this the strictest asepsis must therefore be observed in catheterizing the bladder. Instruments should be boiled in water for five minutes immediately before using, and this is possible even with soft rubber catheters without material injury to the instrument. Extreme care must be taken to prevent urine from trickling down over the affected parts. After removing catheter, disinfect it immediately, bathe the external genitals with 1-4000 bichloride mercury sol. (I use the glass catheter altogether. It has the advantage that it presents a perfectly smooth surface and corner, therefore, a minimum amount of urethral irritation. Boiling the instrument for five minutes immediately before using renders it aseptic.)

During the lying-in period I always direct the nurse to use the vaginal douche 1-4000, twice daily, also to change vulva dressing every three or four hours, and after removing each dressing, bathe the external genitals. All linen must be changed every day.

DISCUSSION.

DR. KENT: I listened with pleasure and interest to the well prepared paper of Dr. McKenzie. I would be rather inclined to criticise Dr. McKenzie adversely, but in truth I find no fault with him, and must say that I heartily approve of everything that Dr. McKenzie has said. I have been practicing midwifery antiseptically I think ever since I have been practicing medicine, which is quite a number of years, but I do it, I think, in a much simpler way than Dr. McKenzie advocates, and I say with pride that so far as I know I have never had a case of puerperal septicæmia where I delivered the case. In consequence of the success I have

had along that line, I am going to give in a few plain words my manner of managing the case so as to avoid puerperal septicæmia. When I am called in I wash my hands thoroughly in a simple carbolized solution, not very strong, but strong enough as I think, to cleanse my hands well. Then I use carbolized vaseline. I have never taken the trouble Dr. McKenzie advocates of having the patient sponged. That might be necessary in some cases, but I have not found it so, and I am inclined to think from my experience that puerperal septicæmia is not a very common disease, or I might have had some of it in consequence of my not having been more thorough in my treatment. Oftentimes in the rush of human affairs even in a small village, you do not have time to do everything that Dr. McKenzie advocates, and then you must do the best you can. After I have delivered my patient, within a few minutes I deliver the placenta. I ordinarily have her sponged then, the bed linen changed at once, and have her washed once or twice a day with a simple carbolized solution. I instruct usually that these washings should be kept up from five to eight days, depending upon the length of the discharge or evidence of any septic matter that might be there. Where I have been called to cases of puerperal septicæmia I used much the same treatment, and I have been gratified with the quick falling of the temperature and the rapid improvement of the patient after I began the washing. I believe that the best of all is in cleanliness, absolute cleanliness, abundance of fresh air, and as much sunshine as you can conveniently have.

Dr. McMullan: I am disposed to agree with Dr. Kent in his management of normal labor. My record probably has been as good as the everyday practitioner, and I have never yet found it necessary to do more than exercise ordinary cleanliness. I would like to have one point brought out, and that is with reference to the vaginal douches after labor. My custom has been not to use them, and I would like to hear some expression in reference to their use in ordinary normal labor.

Dr. O'Hagan: I am opposed to vaginal douches, and it has been established without doubt that the discharges themselves are the best antiseptics we have. The difficulty and annoyance of using vaginal douches does harm to the patient in the way of disturbing her, and I think among the most advanced and

enlightened obstetricians the method is not approved. I do not think they are of value, and should be condemned.

Dr. Watson: I cannot agree with Dr. O'Hagan about the harmfulness of vaginal douches. The best time to deal with a possible infection following labor is when the germs first invade the vagina. Antiseptic douches of bichloride of mercury given night and morning, strength, 1 to 2000, will, as a rule, limit infection, should any occur, to the vagina. In regard to the rare occurrence of sepsis following labor, I have not had the same experience Dr. Kent has. I feel it my duty to proceed, as this gentleman in his paper advocated—to deal cautiously with every case. Any one doubting the value of antiseptics in midwifery should study its history in the lying-in wards of Bellevue Hospital, where the mortality due to sepsis was so high prior to 1882 that lying-in patients were no longer received. Rigid antisepsis has since reduced the death rate in the same wards to ½ of 1 per cent. Intra uterine douches should only be used in cases where infection has already occurred.

Dr. Royster: The only point about which Dr. McKenzie has overstepped the bounds is in recommending the use of douches in leucorrhea. My practice has been not to use douches in leucorrhea cases. My practice has been not to use douches in normal labor. I believe Dr. Kent has been very lucky. I am sure if I had omitted any link in the chain of my usual precautions I would have had a case of puerperal fever on my hands. I have no record to speak from, because my experience has been too small, but it seems to me we are called upon to be just as careful in our ordinary midwifery as we are in surgical practice. I think that a man should use a stiff brush and plenty of soap and water, and some chemical preparation afterwards. I think if that is done the rest of the conduct of antisepsis in keeping the hands clean will be very easy. I was much interested in an article by Dr. Edgar some time ago on the practical management of normal labor. He quoted statistics from Williams and others to prove that there were no germs subsisting normally in the lochia. I have seen a great many articles on the study of practical asepsis for labor, but there are very few which tell the general practitioner what he wants to know in ordinary practice. They talk about sterilized sheets and sterilized gowns and things of that kind, but they do not talk about the sterilized finger. The germs

do not exist normally in the vagina. My experience has not been large enough to make any further observations, but I think we all learn that most of the trouble comes from personal contact either from the doctor or the nurse. It is not medicine.

Dr. Herring: What little we all know about medicine, in my opinion we learn by experience. We have learned that a dose of castor oil affects the bowels if we take it. We know that it will act in a uniform manner with but few exceptions. I can only reason from facts. I cannot manufacture theories, neither can I get a theory from anything but a known fact. I wish simply to relate a case. It was the case of a pauper patient who had miscarried at three months. She miscarried two days, the fœtus had discharged promptly as it usually does, and left the balance behind. When I went to see her she had a temperature of 106. She had all the cover in the house piled on her, and she was shivering. I found that the after-birth was still adhering to the uterus. I told her the necessity for getting it out. I went back to get instruments, and told her to have some hot water, and told her to send for some old woman who would do what I said do, without asking any questions. When I got back the hot water was there and the old woman was there. I put her on a table, put her on her side and tried to detach the placenta. I could not get it with my finger. I never have been able to get one with my finger yet, but I went in with instruments. The placenta was absolutely in a state of decay. I worked with her for two hours. I got every particle out that I could. I don't know whether I got any microbes or not. I didn't see them. After I got everything I could with the instrument I took a syringe and introduced the nozzle into the uterus and pumped in about three gallons of hot water. I took it out and had her washed outside. I put her back to bed and her temperature was 98½. It never went above that point any more, and she never took a drop of medicine. I want to ask this question. If germs produced all that disturbance in her system, causing a temperature of 106, profuse, cold sweats; cold to the hand but hot to the thermometer, I wish to know if the microbes causing all this disturbance; and which you need a powerful microscope to see, it is possible that I took them out with a pair of dressing forceps. Here was a woman having chill after chill, in profuse perspiration, with pure and unadul-

terated septicæmia, and all I did was to cleanse out her womb with a forceps and pump in hot water until I could not get a trace of colored matter. I ask this Society to tell me what caused that temperature and what caused it to go away.

Dr. J. W. Long: If Dr. Herring had done like the Philadelphia Doctor when he was searching for the 'possums—looked through a microscope, he probably would have found the microbes.

I am familiar to some extent with Dr. McKenzie's obstretical work, and if his method may be denominated "meddlesome midwifery," then middlesome midwifery gives good results, for I know he attains most excellent results.

I agree with Dr. Royster that the same precautions should be taken in prepaaring one's hands for an obstetrical case as in surgical practice. It has, I think, been clearly shown that the pathogenic germs have their normal habitat in the upper part of the vagina and even in the cervical canal. None are found beyond the os in a normal, healthy uterus. If, as most of us believe, these little microbes or bacteria in question are the cause of puerperal sepsis and may be destroyed or gotten rid of by the use of mechanical measures and antiseptic drugs, then it seems to me to be rational, to be good common seuse treatment, to scrape and wash and use antiseptic drugs until we free our hands and the genitals from bacteria. I agree, and my practice is, when there is no leucorrhea, there should not be used any vaginal douches before labor. The gist of Dr. McKenzie's paper is that he is striving to attain asepsis, and that he is working to free his hands and the genitals from infectious bacteria, and I believe that that is the basis of all good surgery, and surely we ought to regard an obstetrical case as a surgical case, and treat it after the same general principles.

Dr. McBrayer: In regard to the vaginal douches, I would be willing to use it after every labor, provided I had a trained nurse to administer it, but in the absence of a trained nurse I think it is not only not necessary, but I think it is dangerous to use these common syringes that lie around the house in the dirt and to use the vaginal douche after normal labor. You all down east may be fortunate enough to have a trained nurse with every case of obstetrics, but we up here are not quite so fortunate, and the younger members of our profession are so rushed that they have not the time to administer the douche themselves, so under

those circumstances I am opposed to giving the douche. Theory is a nice thing, and I am sorry that all our theories do not prove to be correct. I just want to tell you what a young doctor said to me one day. The old doctor referred to is a member of this Society, and if I called his name you would all revere and honor it. The young doctor happened to practice in the same neighborhood, and he came to me one day and said: "I cannot understand it. Here I go to a case of labor and use all antiseptic precautions, and yet I have a number of cases of septicæmia and my patients die, while my friend and colleague never washes his hands. He even goes to the stable and hitches his own horse and goes on and never has had a case of septicæmia." I don't know what that proves, but I understand it is true.

Ectopic Pregnancy.

J. W. LONG, M. D., Salisbury, N. C.

DEFINITION.

The term ectopic pregnancy is preferable to that of extra-uterine pregnancy, because (1) the word ectopic means *out of place*, and in these cases the product of conception is out of the normal place; (2) it is claimed that in one variety (the so-called interstitial) the fetus actually develops within the uterine tissue, therefore, can hardly be called extra uterine.

PHYSIOLOGY.

It may be stated briefly that conception normally occurs in the fallopian tube. This statement is contrary to the views held by earlier obstetric writers, who supposed that fertilization of the ovum occurred in the upper part of the uterus; the tubal cilia having wafted the ovum downward and the uterine cilia the spermatozoa upward. Hofmeier has shown by recent observations that the current of the uterine cilia is like the tubal current from above downward. Again in the lower animals, spermatazoa have been observed time and again to make their way up into the tube and have even been seen swimming in the

peritoneal fluid on the surface of the ovary, where, as Kelly says, they lie in wait for the ovum.

These facts, together with the additional knowledge that spermatazoa may retain their vitality for a long time after copulation, even as much as six months in the female bat, and, according to Duhrssen, as much as three and one half weeks in woman, certainly tend to show that fecundation normally occurs in the tube.

Therefore, it may be confidentally stated that an ectopic pregnancy is a pregnancy in which the normal downward passage of the fertilized ovum through the tube has been arrested.

CAUSES.

In a general way it may be stated that the arrest may be due to:

1. Obstacles within the lumen of the tube.
2. Some disease or abnormality of the tubal wall.
3. Factors external to the tube, encroaching upon or obliterating its lumen.

Under the first head may be mentioned intra-tubal growths and constrictions; under the second, salpingitis, persistence of fetal type, multiple ostiæ, etc.; while the third division embraces tumors, adhesions, twists, bends, and in fact, anything tending to hinder the free passage of the fertilized ovum along the lumen of the tube.

PATHOLOGY.

As this is a clinical paper, the pathology may be dealt with briefly. It should be noted that while the placenta develops at the abnormal location of the fetus, it is only the fetal portion that does so, while the maternal portion of the placenta develops in the uterus. It is this maternal portion that at some time during the progress of the case is cast off and often leads the obstetrician to believe that an abortion has occurred. At the point along the tube where the impregnated ovum may find lodgment there begins at once an active congestion resulting in the thickening of the surrounding tissues and the formation of the fetal sac. Following the primary thickening there occurs thinning and stretching of the fetal sac at its weakest and most unprotected point. This is due to the rapid growth of the ovum

or to hemorrhage within the sac. The outcome of the extreme thinning and softening of the tissues is rupture of the sac, allowing the contents to escape either into the abdominal cavity or between the folds of the broad ligament. This usually occurs from the eighth to the twelfth week. Exceptions to this statement may be noted. It is barely possible for the pregnancy to go to term without rupture of the tube. When rupture does occur the placenta may retain its hold in the tube while the fetus escapes into the peritoneal cavity, or the rupture may occur between the folds of the broad ligament and even be followed later by a secondary rupture into the peritoneal cavity.

The limitations of this occasion forbid even a mention of all the pathological freaks that may take place. The most important feature of a rupture is the *hemorrhage*. But for the hemorrhage and the subsequent infection, the rupture of an ectopic fetation sac would probably cause very little disturbance in the woman's abdomen. If the hemorrhage is at all profuse the woman is at once precipitated into a profound shock and even death. The hemorrhage takes place in the direction of the rupture; either into the peritoneal cavity or between the folds of the broad ligament. If in the latter place, it is limited by the resistance of the tissues, therefore not so dangerous as when it escapes into the peritoneal cavity. If the woman survives the first shock of a peritoneal hemorrhage, adhesions quickly form, being nature's supreme effort to save the peritoneum from further invasion. Even after adhesions have formed, hemorrhage may continue or recur accompanied by shock, heart failure, etc.

It is readily understood how the conditions presented by the rupture and hemorrhage offer a favorable nidus for the development of infection, and as a matter of fact, this usually occurs in those cases that do not immediately succumb. As a result of the infection, we have the blood clots breaking down into pus, forming a so-called pelvic abcess, or the infection may be more widespread producing general peritonitis and septicæmia. In either event death is likely to terminate the case unless surgical measures are resorted to.

In the general wreck, the fetus is, as a rule, lost sight of ; it is either absorbed by that great lymphatic gland, the peritoneum, or is broken down and lost in the suppurating mass. However, the fetus may escape with its life and go on to term either as an

intra or extra-peritoneal pregnancy; or life having ceased, be converted into an encysted mass or lithopedion.

CLINICAL HISTORY AND SYMPTOMS.

It is believed that a tubal pregnancy is more apt to occur after a period of sterility. A woman sterile for some years is seized with the ordinary symptoms of pregnancy; often, in addition, there is a different or "queer feeling," as she expresses it. Perhaps the last period, instead of being entirely absent, was a mere dribble. She will probably miss the next period and at about the eighth or ninth week will notice her linens slightly stained and there will pass from the uterus "some pieces of flesh" resembling the products of an abortion; indeed, they are pieces of the maternal portion of the placenta. Rupture of the fetal sac often occurs about this time. This may be precipitated by any act of violence, as a misstep or blow. One of my patients ruptured her tubal pregnancy by a sneeze. The prominent symptoms accompanying a rupture are pain, shock, collapse. If the patient survives the primary shock and hemorrhage, she will suffer all the horrors of peritonitis and sepsis. One patient that I saw told me that she suffered so fearfully that she got down on the floor and tried to butt her brains out against the wall.

PHYSICAL SIGNS AND DIAGNOSIS.

A physical examination prior to rupture will reveal a pulsating tumor occupying the situation of one of the tubes. The presence of such a tumor with the symptoms of pregnancy should determine one to operate. After rupture, the diagnosis is still more easy because of the history, first, of the symptoms of pregnancy, second, of the shock and collapse. In doubtful cases, err on the side of mercy and operate.

TREATMENT.

Prior to the fifth month or the period of viability, whether before rupture or after, there can be but one rational treatment, and that is surgical. Among surgeons this question is beyond cavil. After the fifth month, the interests of the child demand that we wait, but do not cease to watch and be ready to operate at a moment's notice.

OPERATION.

The method of operation will be determined by (1) the conditions present, and (2) the predilections of the operator.

Briefly, my choice in all ruptured and newly ruptured cases is to operate through the abdomen ; in cases that have been ruptured some days or weeks the best route is through the vagina, as a rule.

REPORT OF CASES.

My experience with these cases has not been large, having seen only six cases, so far as I know. I add this qualification because I am convinced that this condition, like appendicitis, often passes unrecognized. I append the report of only a few cases by way of illustration.

CASE I. Mrs. M., age about 19 ; the wife of a member of one of our graduating class, came into my office with her husband who wished me to examine her. She had missed one period and at the time of the second one began to dribble and passed several pieces of flesh-like tissue. She had complained of constant pain in the right pelvic region for several weeks. On examination I found the uterus slightly enlarged, while to the right was a pulsating mass the size of a small orange. The tumor was freely movable, and I expressed the opinion that it was probably an ectopic pregnancy and advised an immediate operation. I had just lectured on the subject of ectopic pregnancy, and this young doctor and his wife had been reading up the subject, so they readily acquiesced to my advice. The same day the lady was taken to the Old Dominion Hospital, where I operated on her. After being put under an anæsthetic she was examined by my colleague, Dr. Geo. Ben. Johnston, who agreed in the probability of an ectopic pregnancy and the indications for an operation. He also kindly assisted me in the operation. When the abdomen was opened, there were found several ounces of fresh blood in the pelvis. The right ovary was the site of a newly ruptured tumor containing blood clots. No fetus or definitely formed placenta was seen, nor was the tube involved. The rupture must have occurred between the time I saw her in my office in the morning, and the time when the abdomen was opened. It is probable that the sac was ruptured during the examination under anæsthesia, as both Dr. Johnston and myself palpated the parts bi-manually.

It may be objected that this case was not certainly one of ectopic pregnancy. I grant the exception, but it must be admitted that the history of a newly married woman, amenorrhœa, the recent pain and discomfort in the right side, the gastric disturbance, the dribble, the passage of fleshlike lumps, the tumor, the fresh blood in the abdomen—all point to an ectopic pregnancy.

Case II. Mrs. G. Sterile several years; had missed two periods. In the ninth week she was sitting at the breakfast table when she sneezed and was at once taken with a violent pain in the left side of the pelvis and fell to the floor greatly shocked. My friend, Prof. C. A. Blanton, was called to see her, and later at his request I saw the case with him. At time of the consultation a tender mass could be felt filling the left pelvis. On opening the abdomen, we found the left tube to be the site of an ectopic pregnancy. The fetus was not seen, but the placenta was removed from the tube and later the tube itself. The rupture had occurred on the anterior surface of the tube and the hemorrhage consequently had escaped into the anterior segment of the pelvis above the bladder, and not into the cul-de-sac.

Case III. Just after going to my present location, I was asked by my associate, Dr. John Whitehead, to see a colored woman, the mother of several children, who, after missing three periods, was seized with an intense abdominal pain, shock, etc. The woman had been in the throes of peritonitis three months when first seen by Dr. Whitehead. The next day he asked me to see the case with him. A mass was found filling the entire pelvis and extending half way up to the umbilicus. The woman was so emaciated and in such extremis that we feared to give much anæsthetic, so Dr. Whitehead cautiously administered a very little, while I quickly made an incision in the posterior vaginal fornix, opening into a large septic cavity full of broken down blood clots, detritus and pus. Free drainage soon brought this woman from a mere skeleton to 160 pounds, her usual weight.

Case IV. Mrs. R., a western lady recently moved to a North Carolina town, having been several years sterile, missed two periods, and becoming anxious about herself introduced a pencil into her uterus. Shortly afterwards uterine pains and flow set up. These continued for a week when she was suddenly seized with an agonizing pelvic pain, precipitating her into a profound shock. Dr. Staunton, of High Point, was attending her, and the woman

having confessed the use of a pencil, he suspected a ruptured uterus. And he certainly had good reason for thinking so. The woman rallied after a few hours and the next day had another attack. On the fifth day I was asked to see the case with Dr. Staunton and Dr. Scott, of Mebane. I found the woman highly septic, delirious, vomiting and greatly prostrated ; temperature ranging from 102 degrees to 104 degrees ; pulse frequent and feeble ; abdomen tympanitic and tender. On bi-manual palpation the pelvis and half the abdomen was found to be filled with a very tender mass, while the uterus was pushed upward and well to the front. The case was puzzling, but I expressed the opinion that it was one of ruptured ectopic pregnancy, in spite of the pencil episode. Drs. Staunton and Scott concurring, we lifted her gently on to a cot, placed the cot in the baggage car and took her to Salisbury, where she was operated on immediately on our arrival at the Sanatorium. A vaginal incision opened at once into an immense cavity filled with blood. Putting in two fingers I brought forth the fetus and more than half a gallon of blood clots. The adherent right tube and ovary, with the placenta attached were loosened up and drawn through the vaginal opening, a ligature was placed around the tube close to the cornua and the right appendages cut away. A rubber T-drain was placed into the cavity and stitched to the side of the incision, while plain gauze was firmly packed into the cavity. This woman was in extremis, yet in spite of the wide-spread peritonitis and sepsis she progressed steadily to a perfect convalescence.

I have operated on two other cases—one ruptured and the other unruptured, but I will not weary you with the details of them ; suffice it to say, that all my cases have recovered.

DISCUSSION.

Dr. H. A. Royster: I was unfortunate enough not to hear all of Dr. Long's paper, and therefore am at some disadvantage in discussing it, but I cannot allow this occasion to go by without endeavoring to say a few words. I think we all ought to thank Dr. Long for bringing this subject before us as well as for exhibiting such successfully managed cases. During my term of service in the hospital at Pittsburg I saw five cases of ectopic pregnancy, and since being in practice myself I have operated on five and seen two others operated on. I think the condition, as

Dr. Long says, is much more common than it is thought to be, and very frequently not recognized. In a series of 1300 general autopsies on men, women and children performed in Philadelphia, there were found to be about a dozen cases of ectopic pregnancy which had not been recognized. It is no doubt a surgical condition, just as I believe appendicitis is, and nothing short of a radical operation will do good. I have been somewhat wedded to the treatment by vaginal incision in treating these cases. I saw Dr. Kelly treat two of these cases by this method, being among the first he did in that way. There is no doubt that these cases have to be selected. It would not do to perform vaginal incisions in recent cases, in which there would be some fear as to further hemorrhage, but cases which have gone longer and come under the observation of the surgeon later, where the bleeding has stopped and the blood clot formed, it is simpler, less dangerous, and is productive, I think, of as good results as abdominal incision. In the four cases I have operated on two were by the abdomen and two by the vagina. The first one I have already reported. There was a double pregnancy, one inter-uterine, and one extra-uterine. The cause was seen a month after the first child was delivered. The other three cases all recovered, one by the abdomen route and the other two by the vagina. The mortality of these cases is not very high if ordinary skill and judgment is used. In the cases Dr. Long has described, where the conditions come on suddenly, of course the operation must be done at once to be of benefit. If it cannot be done you must support by stimulants, and sometimes it does pass off and you can operate later. The condition is not hard under some circumstances to diagnose. I have been accustomed to lay a great deal of stress upon the history of the case; the varying period of sterility, the former history of pelvic disease, though this is not so important, the suspicious signs of pregnancy, the pain, and of course the attack itself, all when taken into consideration in their natural order will sometimes point out a diagnosis even before examination. That has been my experience. I think it is well for physicians to be on the lookout for this condition. If I had been given a case like the one of which Dr. Long recited I should presume that she had extra-uterine pregnancy. This condition is frequently mistaken for pelvic disease. Dr. Kelly himself, when I was in the Johns Hopkins

Hospital had a case which he claimed was pelvic disease, but his assistant thought it was extra-uterine pregnancy, and they opened the abdomen and found it was extra-uterine pregnancy. There are cases of extra-uterine pregnancy which frequently have a temperature of 102 or 103 without having septic conditions.

I am very thankful to Dr. Long for bringing this subject up, and I cheerfully add my little mite, because it is always an interesting subject to me.

Dr. H. S. Lott: We are much indebted to Dr. Long for his paper. I believe the conditions occur oftener than supposed. Like some other subjects, it is not given the careful thought and study it deserves, and many women die simply from want of knowing what is the matter with them. Many die from supposed colic, meaning a ruptured tube, who should be saved. It is a case of hemorrhage, and while ligation of the bleeding vessel requires wisdom, boldness and skill, it will often save our patient.

The Application of Forceps in High Presentations.

By D. A. STAUNTON, High Point.

The application of the forceps where the head is low in the pelvis is extremely simple. When in these cases there is no disproportion between the size of the head and pelvis, and slight traction is required to supplement deficient expulsive power, the operation of applying forceps and expediting the delivery is, in the hands of an ordinarily well instructed practitioner, perfectly safe to both mother and child.

It is very different when the head is arrested at the brim, or high in the pelvis. Then the application of the forceps is an operation requiring much dexterity for its performance, and must not be undertaken without anxious and mature consideration.

It is because these two classes of obstetric operation have been

confused that the use of the forceps is regarded by many with such unreasonable dread.

It should be borne in mind that most of the bad results following obstetrical operations of any kind, are due to carelessness rather than to ignorance or inexpertness of the operator.

While most physicians feel that in the practice of surgery they must be painstaking, methodical, and familiar with recent advances in surgical knowledge, yet in obstetrical work they are apt to be careless and indifferent, trusting that nature will supplement all deficiences and somehow pull the patient through safely.

Many who pride themselves upon their scientific precision as physicians or upon their expertness and rigidity of technique as surgeons are nevertheless slovenly and careless as obstetricians.

This anomalous state of affairs may be due to the wide diffusion of the erroneous idea that pregnancy, being a physiological process whose natural termination is labor, there is consequently no special care or prevention necessary. Obstetricians can never do good, safe work, until they learn to regard every confinement as a surgical case with many pathological possibilities to be avoided, or to be overcome, rather than as the natural termination of a physiological process. This may seem to some an overdrawn proposition. Nevertheless it is true, though some may have learned the force of it after the time had passed for saving the life of a mother or child. Again, the old half-truth, that "Meddlesome midwifery is bad," has done much harm by detering obstetricians from acting promptly, and thereby serving as an ever-ready excuse for procrastination, at a time, too, when two lives "tremble in the balance."

Operative midwifery is a department of surgery governed by the strictest principles and rules of general surgery.

Operative precision cannot be attained nor can mortality and morbidity be reduced to the utmost, unless practice is based upon broad surgical principles, and the same attention is paid to technique as is in operations upon other parts of the body.

In no department is this more important than in operative obstetrics and in none does disaster follow carelessness and neglect more rapidly and surely. It cannot therefore be too strongly impressed upon all who practice the obstetrical art, that a rigid technique is essential and that success or failure will depend more upon surgical cleanliness than upon mere expertness in operating,

and in no obstetric operation should there be a stricter observance of these rules than in the ones named in the heading of this paper.

Next in importance to a careful technique stands the question of when the forceps should be applied. I speak only of high presentations, as where the head is low the indications for the use of the forceps are much more readily determined. Broadly speaking, I would say that as this procedure deserves to be classed among the major operations, we should never wait till the mother is exhausted, for under the most favorable circumstances a forceps delivery in high presentation is a trying ordeal.

Engagement often fails to take place because of a faulty presentation of the head or of the body. Again puerperal convulsions may necessitate the application of the forceps while the head is still high, in order to bring the labor to a speedy close. These and other indications will frequently lead the conscientious obstetrician to resort to the forceps before the head descends into the pelvis.

The following cases will be of interest as showing the ineffectiveness of nature and the difficulty of delivery :

Mrs. W. H. primipara, age 22, was taken on Thursday morning at seven o'clock. I saw her several times during the day. Pains were slight and dilatation was slow, at nine p. m. gave ¼ gr. morphine hypo. Patient rested fairly well during the night. Friday morning the pains were still feeble, though dilatation had advanced to the size of a twenty-five cent piece. The pains continued all day Friday and during the night, but were too feeble to engage the head.

On Saturday the pains were harder, still the head would no engage. The patient by this time was becoming nervous and showed signs of constitutional disturbance. I now called my associate, Dr. J. J. Cox, and we were not long in deciding that labor must be effected in some way. After carefully studying all the ways and means at our command we decided to first try the forceps. The head was still at the brim. Under complete anesthesia we succeeded in grasping the head by having the child steadied by an assistant.

Delivery was slowly but successfully effected without injury to either mother or child.

Case second, Mrs. L. J., prim., was first seen on Friday, June

4th, '97, at 7 a. m. The progress of this case was almost parallel to that of No. 1, except that the pains were more vigorous from the first. Under the most careful watching, by Sunday, the 6th, she was growing very nervous. Fever had developed to 101, os dilated to the size of a 50 cent piece. At 7 a. m. I called my associate, Dr. J. W. Long. After examination it was decided to wait and see if dilatation and engagement would not take place. At 10 a. m., the patient was showing such decided failure that we concluded to attempt delivery with the forceps while the head was still at the brim. Though Dr. Long expressed the doubt that the head could be grasped.

After carefully preparing the patient, under complete anesthesia we succeeded in delivering alive an eleven-pound child with no worse accident than a lacerated perineum which was repaired before we left the house.

Case third was where the application of the forceps became necessary to expedite the delivery because of puerperal convulsions.

Mrs. Dr. G. primipara aet 33 was taken with a convulsion at 11 p. m. I reached her at 2 a. m., found her comotosed. Examination showed the head against the brim, os only slightly dilated. The husband, a very competent physician, was keeping the convulsions under control with chloroform. Recognizing the gravity of the case and feeling from the circumstances surrounding the case an unusual responsibility, Dr. Armfield, a man of large experience was sent for. After a consultation we decided to stop the chloroform and give tr. veratri viride to control the convulsions, but the husband having that groundless fear that veratri was dangerous, would not let me give a full dose, (10 drops) so I gave only 5 drops and the convulsions was not controlled but a few hours, and we decided that delivery must be effected in some way and the forceps was selected, the head proved to be a very large one and much time and strength was spent in effecting delivery, but finally we succeeded in bringing a live child into the world.

There is some difference of opinions as to the application of the blades in high operation as to which should be considered the head or the sides of the pelvis, as for my part I pay no attention to the head but apply the forceps with reference to the sides of the pelvis.

REPORT OF THE SECTION ON MEDICAL JURISPRUDENCE AND STATE MEDICINE.

Juvenile Criminals.

By THOS. F. COSTNER, M. D., Lincolnton, N. C., Chairman.

I DESIRE to present this subject to your consideration, not because I expect or can hope to offer anything new, but because of its great and ever increasing importance, both to this Association, and to the State and society at large.

Our State has taken on a new life, and is just now developing its material resources and increasing its wealth and population with wonderful strides. So much so, that we are attracting the attention of the hitherto older and more advanced and progressive States and peoples. Our civilization should keep step with our material progress. And nothing more surely marks the true index of morality and higher civilization than the attention paid by a people and by the public authorities to their poor and unfortunates, and to their criminals, those who must be restrained or reformed in order to protect society.

The medical profession has during the past decade made the greatest advances in its history, and has kept its place in the very van of the onward progress of civilization; in fact, has marked each step in that progress by some new discovery or device to alleviate man's sufferings and to prolong his days, or increase his usefulness in life. We may justly feel a pride in the fact that we have almost invariably been the pioneers, who sounded the first note of warning and who led the fight for the great reforms in the laws for the benefit of humanity.

Our State has for many years neglected to properly look after and care for a large class of unfortunates, and the duty has again

devolved on us to call the attention of the people to this, and to start a crusade, which with education and enlightenment, must eventually result in the enactment of more just and humane laws, for the treatment of the young class of criminals.

It is impossible to obtain any statistics in regard to the matter of criminals belonging to the juvenile class in our own State, as none have been kept of this particular class; the statistics, like the criminals themselves, have been jumbled and thrown together in one bunch. But the information to be gathered from the 11th census, under the report on Crime, Pauperism and Benevolence, and under the subdivision of Juvenile Criminals, as compared with the previous, or 10th census, shows us most assuredly that this class of young criminals is on the increase. Aside from the census, the very causes that produce and concentrate wealth among a few, increase the number of the poor, and the depths of poverty; and these last two results are in their turn the efficient and procuring causes of crime. If the class of criminals in general are on the increase, we may assume that the juvenile shares in this increase. But we have only to look around us in our daily life or step inside the criminal Court room, to find how crime has infected the young, and how the number of this class is constantly increasing.

If we were permitted to study and trace the history and ancestry of many of these youthful criminals, we would probably find that in many instances, perhaps the majority, they themselves are not responsible morally, and ought not to be legally, for their first crimes.

Their crime is the result of a physical and mental organism handed down to them from a criminal or defective ancestry, perhaps accentuated and increased through many generations. They are defects, were so at birth, must remain so through life, and if no proper method of treatment or restraint is thrown around them, will transmit their defects to their posterity in all probability, with the increased interest accumulated during a life of vice and crime. They are crippled in the start of life's race, unable to cope with or resist the temptations with which their pathway is beset, and an easy prey to the Evil One. It may be the parent or some more remote ancestor, or a long line of ancestry were defectives, either vicious, a drunkard, an epilectic, or in ome other form a defect. Such persons as these are no more

responsible, and should no more, from a moral standpoint, be held accountable for their crime than you and I. And so far from meriting the condemnation of the law, and the felon's chains and clothes and cell ; they deserve the pity and sympathy of all mankind, and they should receive from the better class of our people, that kind of treatment which will assist them to remedy the defects of nature and birth, and lead them towards higher and better ideals in life.

Our criminal laws, we are told, are based upon two cardinal ideas, punishment of the vicious law breakers, as an example to deter others, and reformation of the offender. I fear sometimes, we have almost entirely lost sight of the latter element, and proceed in the enactment of laws for punishment, and in inflicting and carrying it out solely on the idea of making an example of the offender ; and even at times another element seems to enter into the execution of the criminal laws, an element that ought never to be allowed to enter the mind or heart of a judge in dispensing punishment to the unfortunate, the idea of revenge, or a punishment to recompense, as it were, the State or an individual, for the injury inflicted by the offender.

To punish the class of juvenile criminals above mentioned and referred to, for the purpose of making an example of them, is utterly wrong in principle, is absolutely inhuman and cruel, and in its results must necessarily and does end, not in reforming the criminal but in making him worse. In dealing with juvenile offenders, we ought to have the single object in view of reforming the offender, and in the meantime restraining him from doing injury to society. He should be taken charge of upon the commission of his first offense, placed in the care and custody of those peculiarly fitted by skill and experience to study and deal with his defects; and every endeavor made, which skill can invent, or wealth and means provide, to remedy his defects, and to restore him to his place in society when, and only when, it is safe and prudent to do so. The strongest moral influences should surround him, while thus restrained ; such a system of merits, rewards or compensation for industry, good behavior and improvement should be devised, as would quicken and develop and stimulate the better and higher moral and intellectual powers; powers, which, even among the criminal, are often only dormant, and need to be aroused and put in action, in order to engage the attention of

the man or youth, and to drive out or tend to dispel, the vicious elements in his make up. It is unnecessary to say to any who have stopped to reflect on human nature, or who have observed it in their everyday life, that there is hope of reforming even the older offenders, and there is great hope of changing and moulding the mind and even the heart of youthful criminals so as to make of them useful and even valuable members of society. A wide field of usefulness, hitherto unoccupied in our State, is open along this line to those who wish

> "To soften the weight of adversity's touch
> On the faded cheek of their fellow-man."

Our treatment of this class of offenders is the very reverse of what it should be. Upon their first offense, in some instances, yes in many, when we take into consideration their surrounding environments, their antecedents, and their capabilities, when they hardly have an idea of society and no conception of the law's demands, they are taken and confined in a jail, filled with older and more hardened criminals, reeking with filth and unwholesome and repulsive surroundings. In many instances they remain there until the court meets which will try them, or if they do not remain during this preliminary period, at the trial they are sent back there or to the penitentiary with similar surroundings. And when this same criminal in after years is called up before the same or some other bar of justice, for another or second offense, the fact that it is his second offense is laid to his charge ; his punishment is increased because he did not reform, when in reality the State and the laws enacted by the governing powers have placed in his pathway every obstacle possible to his reformation, in the very method and manner of punishing him for his first offence.

Certainly no cause is a more efficient or prolific source of crime than evil associations and companionship with the bad. Our English cousins have long since discovered this evil, and made provision to remedy it to some extent at least, by providing a separate sleeping apartment for each criminal, old or young, confined in their prisons or penal institutions. We ought to follow their example in this matter, and especially ought we to keep all young offenders, both during their confinement preliminary to their trial, and men under final sentence, away from the vicious and criminal elements and surround him with those influences

and associates which make for good ; its influence extends beyond the conception of man, if for evil, its blighting impress is likewise immeasurable.

According to the last census report, twenty-five States and the District of Columbia had some means for caring for juvenile criminals, either such as were provided by law, or by individual charity. Perhaps the best known, as it is reputed to be the best managed institution of the kind, is the New York State Reformatory, at Elmira. We are reliably informed that the Superintendent of the institution is a man of the highest skill and qualifications for this kind of business; that the management of the institution is fortunately kept outside of politics and its influence, which is often so destructive to the progress and systematic development of such and similar institutions. The criminals who are sent there, are sent under an indefinite sentence, there being simply an extreme limit, that is they cannot be kept there beyond the maximum time which they could be confined in prison, and they may be paroled or discharged at any time the officers of the institution under the regulations thereof deem it proper. Every inmate of the reformatory is made the subject of the most thorough study, the history of his life and of his ancestry as far back as can be traced is gone into, all his habits, his prejudices and his weaknesses are most carefully studied. He is surrounded with the best of influences, and his time and thoughts are occupied with such employments as are deemed best suited to correct the causes which lie at the foundation of his crime. A complete system of merits and of marking along every line, with the ultimate object in view of paroling and finally discharging him when he has attained the degree of perfection required by their rules and standards, and this hope and the rewards attending each onward and upward step are constantly before him as an inducement to progress and development. When he has attained the required degree of advancement he is first paroled, and a place found for him to obtain employment, but he is still under the surveillance and oversight of the institution and his history is carefully fol lowed ; if he goes to another town or city, the police are notified, and are required to keep trace of him and report regularly and constantly his progress. If he makes any, even a slight lapse, under the authority granted them by law, he is forthwith sent back to the Reformatory, and goes through a similar training.

The reports show the most satisfactory results, and also show that the average time of confinement in this reformatory is considerably less than for like criminals in the ordinary prisons.

Viewed from the point of cost, the maintainance of this reformatory may seem rather expensive, but we will find it only seemingly so, when we look to the number of inmates. While we may not be able to induce our law-makers to start on so extensive a scale, it is time the start was made. It is a duty every good citizen owes to his more unfortunate fellow-creature ; it is a duty our law-makers owe to their constituents and to the State and society, to establish in our borders such a reformatory.

One thought more I desire to suggest for the consideration of this body on the same subject, that is, how best to restrict and restrain the marriage of defectives and criminals, and the propagation of their defects. I see one of the Western States has recently enacted a law preventing and prohibiting altogether the marriage of defectives and criminals. Such a law is undoubtedly founded upon the highest wisdom and will be of inestimable value to society, if it can be carried out. How to best enforce such laws, and how to make them of practical utility, will doubtless require great time and patience, after such laws are once enacted; but before they can be enacted a great deal of educational work must be done.

Our situation and training places us in a peculiarly advantageous position to see the needs of the reforms, which I have briefly mentioned above. Our position and distribution throughout the whole country, and our contact with every class of people, places us in a position to wield the greatest influence, in favor of those reforms, and in educating the masses of the people to their necessity. It is unnecessary to add, that with this peculiar knowledge and opportunity, a Higher Power has coupled and placed upon our profession the Duty of bending our united and individual efforts to the accomplishment of this great end.

Propagation of Typhoid Fever and Other Infectious Diseases.

By G. A. RAMSAUR, China Grove, N. C.

When my friend Dr. Costner, the chairman of this section, asked me to write a paper, I was in a quandary what subject to select, but the one just read has given me so much anxiety and thought, I at last decided to make it the basis for a few remarks, hoping thereby to provoke a lively discussion, although I fail to give much light on the subject.

The propagation of infectious diseases, as typhoid fever, yellow fever, dysentery and malaria is of vital interest and importance to every practitioner of medicine.

In the province of prophylaxsis the earnest and skillful physician can save more suffering and expenditure of money, and confer greater boons upon afflicted mankind than in his efforts to cure disease.

When our grand old science becomes so enlightened that she knows just what methods and means to apply to jugulate the dread infectious diseases, she will have conferred the greatest good upon man, and should be called blessed.

It is a fact too well established to be controverted that typhoid fever and other infectious diseases, malaria included, are water-borne under certain circumstances.

I wish to premise, at this point, that these diseases are also fly-borne in their propagation under favorable circumstances.

I wish to speak, more particularly, as to the conveyance of infectious intestinal diseases, as typhoid fever and dysentery, in this paper.

From recent observations I have concluded that typhoid fever in small towns, is fly-borne.

Typhoid Fever in cities, with closed sinks and closets, where the excrement is deposited and at once washed away, affording little or no opportunity for access and contact with flies, is necessarily water-borne.

On the contrary, typhoid fever in villages with open sinks and closets visited by myriads of flies, carrying away the germs on their feet to the accessible dining rooms and kitchens and deposit

them on the bread and meat and in the milk and water is, under the circumstances, fly-borne.

Again, typhoid fever prevails in cities, at any season and from time to time throughout the year, provided the germs remain active at all temperatures, while in villages, its ravages are autumnal and most extensive during the hotter, drier months, conditions most favorable to propagation by flies, disappearing when the colder weather comes on, putting an end to the migrations of these filth conveyors.

The importance of flies in the spread of these diseases, I believe has been misunderstood, overlooked and unappreciated.

Contrary to views that are held and promulgated as the usual methods of propagations of infectious intestinal diseases, it is now clear to my mind that they are spread in small towns and rural districts almost exclusively by flies, and malarial diseases by water.

Since passing through the epidemic at China Grove last summer and fall, I am more than ever convinced of this fact. I at first attributed the propagation to the system of the cotton mills, around which the fever was prevalent, the method of drainage, if such it can be termed, being cesspools, which I fully believed had infected the wells. If the disease was water-borne from infected wells by cesspools, then the whole hill was saturated, for there was fever in every quarter and around every well, beginning on the east side of the railroad and ending on the west. I do not think it possible that these six or eight wells were all infected or even probable that any of them were the source of propagation in this epidemic, for there are private wells on the grounds and no fever prevailed in any of these families; and if due to infected wells, why did hoar frost curtail the epidemic?

I do not want to leave the impressions for a moment, I am defending the system of sewerage, for I regard it the most damnable and unconscionable method and practice, and it is only a question of time when the hill will be saturated, and then the fever will be more far reaching and lasting than if fly-borne.

As I stated above, this epidemic began on the east side of the railroad about the first of June, being confined to one house and only one case. The next cases were in an adjacent house, and it spread from house to house until six or seven families in this neighborhood had fever, who drank water from three different

wells. Moreover, there were five or six families in this neighborhood who used the same water and who escaped infection. If water-borne, then all these wells were certainly infected; but how can we account for the escape of the other families who drank the same water? It is not possible they all had sufficient resisting power to overcome a dose of germ from day to day, and is it not more probable and plausible that flies carried the germs from house to house, infecting the water and food, and when they ceased to be a factor in the cause or relation the epidemic suddenly ceased? The disease spread from the east side of railroad to the west side and every street had its quota of cases. The streets all run parallel, the back part of lots lying adjacent, rendering the kitchens and dining rooms of adjoining residences more exposed to flies that inhabit neighboring infected privies.

Some years ago, I remember a family living near by a free school house had typhoid fever; and the nurses, not being properly instructed by the doctor, infected the well by rinsing the chamber and throwing the water about the well to be washed into it with the surface water. The school drank from this well, there being no well on school grounds. Typhoid fever prevailed in all the families that lived in this district and patronized the school. The epidemic continued throughout the winter, family after family and member after member falling victims until the school was suspended because there were no scholars. This is a plain case of water-borne infection.

The epidemic that has been devastating Philadelphia, the past winter, beginning during mid-winter and continuing until the last of March, 1899, five thousand had become victims and five hundred had succumbed, is in marked contrast to epidemics in small towns with diverse water supply. "When flies are responsible there are little neighborhood epidemics, extending in short leaps from house to house, without reference to water supply or anything else in common," as in some of the families at China Grove who are entirely isolated and who did not have their water and so forth in common as was the case in other families. But when water supply is at fault, as it was in Philadelphia, the disease follows its course and use, "the only limitation being the resisting power of individuals drinking it and such household means as boiling and the like as tend to destroy disease germs."

Dr. M. A. Veeder, of Lyon, N. Y., who has made investiga-

tions in regard to conveyance of germs by flies, says: "Epidemics spread by flies tend to follow the direction of prevailing warm winds as though the fly, wandering out doors after contact with some source of infection, had drifted with the wind, but nothing of the sort is perceptible in the case of water-borne disease." The result of his investigations as health officer and physician during the sojourn of our troops last summer is summed up thus: "In villages and camps where shallow open closets are in use, giving access to flies to the chief sources of infection, flies form the chief medium of its conveyance. Hence in villages and camps they are usually fly-borne."

Dr. Veeder states in a paper read before the Buffalo Sanitary Club in December, 1898, that he cut short a grave epidemic of dysentery in its height, there having been forty cases and ten deaths, and rapidly spreading from house to house without the occurrence of a single new case after the proper means of disinfection had been instituted as would make conveyance by flies impossible. "In like manner the past summer a live epidemic of typhoid fever was ended in a day by means directed at conveyance by flies." So, too, he cites instances where malarial fevers subsided without the use of quinine by means directed against conveyance by water.

Take for illustration a case of typhoid fever in its prodrominal stage that is not confined to bed, and, while lingering around deposits the excrement in an open closet where, on a hot day, the dejections all literally covered with flies and the doors and windows of adjacent houses, leading into kitchens, pantries, and dining rooms, is it too much to presume that a microscope would reveal fly tracks of more or less fresh excrement doubtless containing the Colon Bacillus and Bacillus of Eberth on meat, bread, sugar, etc? Is it unreasonable to contend a single case of typhoid fever would start a severe local epidemic under such circumstances?

Dr. Veeder asserts that he has made cultures of bacteria from fly tracks and, also, from the excrement of flies while acting as health officer in the army.

Asepsis and Antisepsis are the sheet anchors in subjugating the forces of infectious diseases. "Cleanliness is next to godliness," and with scrupulousness in regard to room, patient, linen, etc.,

and through disinfection of the stools and their prompt removal, the danger of a spread of diseases is reduced to a minimum.

The greatest difficulty to surmount in these factory districts where laziness and filthiness is the rule, is to enforce your instructions in this regard. For this reason I was not successful in jugulating the epidemic at China Grove last summer, but was able to limit its ravages in families who were faithful in performing their part in the work. It is of paramount importance to thoroughly disinfect the excreta before they are removed to closet, etc.

I feel sure, if the rules of Asepsis and Antisepsis are rigidly enforced in every detail, the physician is master of the situation and can curtail these diseases in small towns.

DISCUSSION.

DR. E. B. GLENN: Dr. Ramsaur's paper was very interesting, and along a line of thought I have been giving a little study for the past few weeks in the Jefferson Hospital Laboratories in Philadelphia, and have some very interesting plates showing that the fly can carry typhoid fever. Of course it is not new that the fly can carry typhoid, but I do not know of any one who has tried any experiment as to the length of time it can carry it, so I determined to make some experiments, with the aid of Dr. Rosenberger, of Philadelphia. We found it very difficult to get any flies at that season of the year, so I sent to Florida and had a lot of bed-bugs, cockroaches and flies sent to me. I took the flies to the laboratory in a mouse jar. There I cut the flies' wings so that they could not get away. The fly was placed in this jar after it had been placed on a culture of the typhoid fever bacilli.

In half an hour he was allowed to walk over an agar plate, and there with his feet inoculate the medium with typhoid bacilli. Of course it was a mixed infection, on account of the fly carrying other organisms naturally found on its feet. The fly was allowed to walk on the media for half a minute. Then he was placed back in the mouse jar. The next day he was placed on another Petri dish spread with agar. Those where the wings were pulled out and those which had a leg broken lived but a little while, but the flies which were well taken care of lived commonly 48 hours. The bed-bug and the cockroach lived much longer. I do not know what caused the death of the fly, but I was able to demon-

strate that the cockroach carried the infection as long as 96 hours, that no trace of typhoid bacilli was found, but we found various other organisms. The bed-bug smears his culture, because he drags on the ventral surface. The fly lifts himself up and infects at different points, while the cockroach is decidedly more cleanly than either in inoculating the media. You will find in one of those plates that the fly not only carries the typhoid bacillus on his feet but also on his wings. He had one wing left, and all the time was trying to fly, and along with that he left a culture of typhoid fever bacilli. I brought these plates, not to show that I had found that the fly does carry the typhoid bacillus, but how long they might carry it. This is a very important point in my opinion, and I think one reason why the prevalence of the disease was so great in the army was because there was an abundance of flies about the latrines which were so close that the flies flew from place to place in a very short time, very often falling into milk and water, and lighting on uncooked food and cooked food which was not heated again before being eaten. After the food was eaten the men would naturally be taken with typhoid fever if their power of resistance was not great enough to destroy the organism. The organisms there present on the Petri dishes are, of course, various pus organisms, and some of the numerous organisms carried by the fly, and the fly is not the only thing that carries infectious diseases. I do not know that infection of malarial fever by water has ever been demonstrated. It has been positively proven that malaria is carried by the mosquito, and that it is inoculated by his bite, and that it is carried by certain kinds of mosquitoes, at different times in different parts of the country. Every mosquito that bites does not carry malaria. The gray dappled wing mosquito is one of the mosquitoes that carry it. This theory was claimed to be introduced by some Italian observers, but the Philadelphia Medical Journal, March 11th, 1890, gives an account of an American named Crawford advancing this theory in 1807. Dr. A. F. A. King claimed that the negro enjoys a partial immunity on account of the character of his sudoriparous secretions and dark skin, the mosquito not being able to see him quite so well.

In some part of Europe, which I don't recall at this moment, to prove that malarial fever was carried by mosquitoes, an observer, Dr. Mason, if I remember correctly, took some up into the

mountains to a home for the infirm, where some of the inmates had been for a number of years. Malarial fever had never been known there. They took these mosquitoes and put them into a room with three patients and allowed them to stay all night. In something like a week the patients began to feel a little chilly and had a slight rise of temperature, but not a marked chill, and no plasmodia was found in the blood at this experiment. A little later they recovered by doses of quinine. There was only one willing to undergo the experiment again. They got other mosquitoes and placed the patient in the room as before, and all the characteristic symptoms of malaria occurred with the plasmodium in the blood, and fifteen grains of quinine was given daily, hypodermically, which cured him of the characteristic chill, fever and sweat. Up to this time I have been unable to find any data which prove any progation of malarial fever by water or air, but it will no doubt be attempted in the near future.

In reference to the importance of the manner in which infection is carried by bed-bugs and cockroaches; it is that often the excreta from patients are thrown around the room on soiled linen, and if these parasites are there they can carry it into the walls of the room and afterwards bring it back again, after fumigation has been completed. Therefore, in such instances, disinfecting agents which cannot reach or destroy the carrier and his infection is undesirable and imperfect. I think formaldehyde is the best.

In reference to the propagation of tuberculosis by bed-bugs. I recently noticed a case in the *American Microscopical Journal*, Oct. 22d, 1894, page 295, which Alleger was quoted by Craig as giving a report by Denevre, in which a case of tuberculosis was acquired in the bed of a brother who had died of tuberculosis. After the brother's death it was noticed that his body was covered by bed-bug bites, and investigation showed the bed-bugs present in large numbers, and 60 per cent. of the bugs possessed the power of infecting guinea pigs, which afterwards died of the disease, although the room was fumigated before the second brother occupied the room, evidently proving that the bugs sought a hiding place during the process of disinfection. A report of the work carried on in the Jefferson Hospital Laboratories by Dr. Rosenberger and myself will appear in the *Philadelphia Medical Journal* on the fifth of June, in an address read by Prof. W. L. M. Coplin before the Pennsylvania State Medical Society, at Johnstown, May 17th. I wish to thank Dr. Ramsaur for his excellent paper.

REPORT OF THE SECTION ON ANATOMY AND SURGERY.

Asepsis and Antisepsis in Surgery.

By DR. GOODE CHEATHAM, Henderson, N. C., Chairman.

THE practice of asepsis and antisepsis is no longer a subject for argument or controversy in the surgical world. Surgery has made such rapid progress since the introduction of the "antiseptic method" of Sir Joseph Lister, that nearly all opposition to asepsis and antisepsis has disappeared. It has become an integral part of the practice of the majority of surgeons all over the world; yet there are a few surgeons of to-day who will operate without any antiseptic precautions whatever, while others use very little, thereby exposing their patients to infections which may prove fatal. Among some of the advances made in surgery, due to asepsis and antisepsis, may be mentioned the abdominal surgery of to-day. No surgeon would hesitate to open the abdominal cavity now, when only a few years ago it was considered almost certain death. The number of successful abdominal operations in cases of gun-shot wounds of the intestines is proof enough to justify the employment of every antiseptic precaution in all operations and wounds, for without it we are sure to have suppuration and, in many instances, septicæmia.

Reports from the last war show that a very small percentage of wounds of American soldiers proved fatal, which was due to the rigid antiseptic methods employed. Each soldier was provided with an emergency outfit, consisting of a piece of sterile gauze, a handkerchief with illustrations and stamped instructions for bandaging every part of the body. These immediate antiseptic precautions, with the care of the surgeons in the hospitals, give

American surgery a great triumph. Compound fractures have been considered among the most dangerous accidents, but now little more than simple ones, while, in amputations, the mortality rate is almost nothing.

A review of the actual status of the life-saving value of antiseptic method certainly justifies its use under all circumstances. If the only claim that could be made for the antiseptic method was that it made the patient more comfortable, hastened the healing of wounds, or rendered an operation safer, it immediately becomes the imperative duty of every surgeon to adopt it.

Since the advent of Lister's method with its elaborately prepared dressings, its powerful germicides, and its troublesome apparatus, there has been slow, but sure tendency to simplify these methods. Simplicity, cleanliness and the weaker antiseptic solutions have gained predominence over the above method. The use of powerful germicides upon a wound surface is falling into disuse, and rightly so, for it has been proven that a wound subjected to this undue irritation does not heal as promptly, for this solution destroys the resistance and antiseptic action of the living cells, which will, if not interfered with, render the few germs inactive, which may gain entrance during an operation conducted in accordance with the improved methods of modern surgery. It will also cause undue serous exudation. There is also some danger of poisoning from the use of strong solutions of bi-chloride and carbolic acid, and also from the use of iodoform, but these cases are very rare, in fact too rare to deserve mention. The simple methods of sterilization, which give better results, are due to the practical teachings given us by the abdominal surgeons. Now the surgeon uses, after his first incision, weak bi-chloride solutions, simple boiled water, or boiled normal salt solutions, reserving his strong antiseptic solutions for cleansing sponges, tampons, etc.

Infection from the germs which enter wounds through the medium of air, is rare, but that it may occur by this means is not in the least impossible. The most important steps to be taken to prevent infection are the careful preparation of the patient, the rendering aseptic the hands of the operator and assistants, and also the thorough sterilization of instruments, sponges, ligatures and dressings. The most approved methods of asepsis and antisepsis of to-day should be familiar to every surgeon. These

methods can be found discussed in detail in any standard work on surgery.

Recently, for disinfection of instruments and dressings, formaldehyde gas has become very popular with some of the profession.

The following are some of the experiments with formaldehyde gas, as a means of disinfecting instruments and dressings. The apparatus used contains about six cubic feet. Using four pastilles of paraform, it was possible to render the piece of gauze that had been dipped in a pure culture of anthrax, sterile in ten minutes, but if a piece of gauze was wrapped in seven or eight layers of gauze and this bundle enveloped in three thicknesses of foolscap paper, twenty minutes were required for sterilization. The only disadvantage noted was that on opening the box the escaping gas caused considerable irritation of the eyes of those in the room. With regard to the effect on instruments, it was found that neither the gas nor the liquid formaline had any influence whatever upon the sharpness of the instruments. For the disinfection of small instruments, such as those used by ophthalmologists, otologists, laryngologists and dentists, it is by far the most convenient and speedy method. This method, probably better than any other for the work designed, carries out the principles of disinfection laid down by Koch, viz.: "the absolutely certain destruction of all pathogenic organisms, in the shortest possible time, at the least expense and with a minimum injury to the object of disinfection." For practical purposes ten or fifteen minutes is a short enough time for the sterilization of instruments, and this can be done with five or even three grains of paraform.

Some Remarks Upon Coley's Treatment of Malignant Growths.

By FRANK T. MERIWETHER, M. D., U. S. A., Retired,
Asheville, N. C.

I wish to preface my remarks upon this subject by stating that I do not in any sense recommend this treatment in cases in which the tumors are operable, even though operation requires total removal of limbs, or destruction of function. In all cases, when operable, and when consent can be obtained, do the most radical operation possible.

I will confine my remarks more especially to the effects of this treatment upon Sarcoma, for true Carcinoma have not given very good results, though in some cases benefit has resulted.

It has long been known that accidental attacks of erysipelas arrested, and in some instances cured, not only malignant growths, but also malignant ulcerations, Lupus and syphilitic erosions. Moullin[1] identified 15 undoubted cases of Sarcoma, in which erysipelas occurred, 9 of which were cured and 5 benefited. Billroth, Busch, Beidert, Coley, Fehleissen, Wyeth, Winslow, Repin,[2] and others, also report cases in which cures or benefits have been obtained in like manner. Fehleissen produced artificial erysipelas in cases of malignant growths, and obtained a cure in a case of Carcinoma of the breast, and benefit in two cases of sarcoma, and two of carcinoma. I have the personal report of a case of sarcoma of the parotid gland and jaw, treated by Drs. Lewis and McIntyre, of Kansas, in which facial erysipelas caused the apparent cure of the primary growth. A metastasis occurred afterwards in the tibia, which was treated with success with toxin injections. Attempts have been made to inoculate cases with the pure culture and then with the toxin products of the germ alone, after sterilization. Coley also used the Bouillon cultures after sterilization, but like Brieger, Lossen and others, did not accomplish much in the way of good. Coley finally made use of the discovery of Roger, of Paris, that the addition of a non-pathogenic micro-organism, the bacillus prodigiosus, added to the streptococci of erysipelas, increased materially their virulence.

His method of preparing the toxin is as follows: Flasks containing 50 to 100 c. c. of peptonized bouillon, after proper sterilization, are inoculated with the streptococci of erysipelas, which are allowed to grow for three weeks at a temperature of 30 to 35 C. The flasks are then inoculated with the bacillus prodigiosus and kept at the room temperature for ten or twelve days. Then, after being well shaken, the culures are poured into sterilized half-ounce bottles and heated to a temperature of 50 to 60 C. for an hour, which makes them perfectly sterile. After cooling, a small amount of powdered thymol is added and the toxins are then ready for use. If they are too strong the preparation may be diluted with either distilled water or glycerine.

To make the bouillon, soak a pound of chopped lean meat over night in water. The next morning strain it through a cloth, make it up to 1000 c. c. and boil for one hour. Then filter through a cloth, add peptone and salt, neutralize, and boil again for an hour. Pass this through filter paper and put into the flasks. It is not always necessary to neutralize the bouillon, as the streptococci are, if anything, stronger when grown upon an acid preparation and they grow as readily.

To keep up the virulence of the cultures, Coley puts them through rabbits as follows: A minute quantity of a bouillon culture is injected into a rabbit's ear, which has been cleansed by having the hair clipped and the ear then washed with a weak carbolic solution and then with sterile water. Forty-eight hours afterwards, after washing the ear again, a flat sterile needle is introduced under the skin near the point of inoculation and the layer of skin cut off. An agar tube is then inoculated with this skin and placed in an incubator. Twenty-four hours later the colonies may be seen as minute white specks, and from them a pure culture may be obtained. If the agar is made with 75 per cent. of bouillon and 25 per cent. of urine, the streptococci will grow more freely.

Technique.—The treatment should be commenced with a dosage of one-half a minim, repeated every two or three days, according to the strength of the patient, and the effect of the injections. In some cases one-third of a minim is not too small. In many cases, particularly those in which the tumor is very vascular, even this very small dose will produce a marked chill and reaction. In a case seen with Dr. Weaver, of this city, we never

did get above three-fourths of a minim, and our usual dose was about one-half, and yet this small dose produced, at times, marked chills and depression. If the patient does not show the effects of the injections, increase the dose gradually until the temperature goes up to 102 or 103 F. A slight chill almost always accompanies this temperature, though it should be avoided if possible. Give enough to stop just short of the chill, and very little depression follows the subsidence of the temperature. The chill or chilly sensation usually comes on within a half to one hour after the injection. Strychnia or whiskey should be given if much depression or rigor follow. Uusually within two or three weeks the effects of the injections can be determined, whether or not benefit will result. In some cases, however, progress is slow, and require a more or less prolonged treatment; in one case reported the treatment being continued for two years before the patient could be said to be well.

If too much time elapses between the injections the growth returns to its former activity. The toxin does not seem to have a permanent effect upon the tumor mass, for after three or four days its inhibitory and destructive power disappears and the cells commence again to proliferate. To obtain the proper dilution, use plain sterilized water.

If the injection is given at some distance from the tumor, sometimes as much as ten minims may be tolerated, but where possible always injects into the tumor itself, for the best effects are and have been obtained when the injection has been made into the tumor mass, and a smaller dose can be used and its effect is shown much more rapidly, and can thereby be the better controlled.

In a case I saw, ten minims would not produce a chill when given in the abdomen at some distance from the tumor, it being a carcinoma of the abdominal wall, recurring after the removal of a large cyst-adenoma, of the ovary, while two minims injected into the mass itself would produce a marked chill and profound depression with cyanosis, pulse of 140 to 160, followed by a temperature of 104 F.

Mode of Action.—The exact rationale of the action of the toxins upon these growths is as yet uncertain. Coley seems to think that it depends upon a bactericidal action, but so far the bacterial origin of sarcoma has not been demonstrated. The toxins seem to have an elective affinity for the cells of the neo-

plasm, for even if the injection is given at some distance from the growth the selective action of the toxin is manifested. In the cases where sloughing and necrosis occur, it shows itself usually within thirty-six to forty-eight hours. In one case of mine, sloughing of the tumor mass was frequently noticed within twenty-four hours, and the effect upon the metastases was noticeable within almost as short a time, though at quite a distance removed from a primary tumor. This necrosis, as Coley points out, is not dependent upon the action of the toxins upon the tissues in a manner similar to that of an escharotic, but is dependent upon some special selection for the neoplastic cells or their cause. In a case of mine, of small round cell sarcoma, the sloughing would always occur at a point some distance removed from the place of injection, and in another case in which the tumor was deep seated, the injections were given under the skin over the site of the tumor, and while the specific action of the toxins was shown, no local slough occurred. The tumor itself seemed to be softened, and finally was absorbed, most probably a form of fatty degeneration.

Results.—Though unable to explain fully its favorable action upon malignant growths, and particularly upon spindle celled sarcoma, the fact remains that a good percentage of cases treated have been benefited or cured. I have collected from various sources 216 cases of sarcoma treated. I do not think that these can represent all the cases treated in this country, for 148 of them are personal cases of Coley's, but I judge that they give a fair basis from which to form conclusions. In not all of them was a microscopical examination made, but the clinical diagnosis, when made, were considered sufficient, and were made by able men. Of these 216 cases, 57, or 26½ per cent., were cured ; 93, or 43 per cent., were benefited to a greater or less degree ; and 3 died. Of the spindle celled sarcoma diagnosed by the microscope, all were benefited and 60 per cent. were cured. Coley reports a case of epithelioma cured, and I learn from other sources of two cases of carcinoma, type unknown, cured, and three cases benefited. One of my cases was a malignant adeno-carcinoma of the ovary, in which the patient was benefited, but owing to objections on her part, and other obstacles, the treatment could not be carried out as it should have been.

The fact that in a great many of the cases the treatment was

commenced late in the disease, when death was imminent, lessens the favorable appearance of the statistics. By leaving out those cases in which death ensued within two weeks, the percentage of cures is much greater. Undoubtedly many cases have been treated without success, which have not been reported, but even if 57 out of a large number have been cured, the treatment should in the proper cases be considered to be upon a firm basis. Of course the only way to arrive at positive conclusions is to consider all cases whether favorable or not. It would be well, if all the cases, particularly the unsuccessful ones, were reported, from which a comparison could be made.

There have been many objections made to this treatment, one on the ground that mistakes have been made in the diagnosis of those cases said to have been cured. It is possible that error might have occurred in those cases in which no microscopical examination was made, and where the diagnosis was made upon the clinical features alone, but in the greater percentages of the cases benefited or cured, accurate microscopical examination has been made.

Welch says that "microscopically, spindle celled sarcoma cannot be confounded with anything else, though the round celled sarcoma might be with syphilitic gumma." But it so happens that it is in the spindle celled form that the greatest good comes.

In Battle's[1] case, reported before the Medical Society of London, in which, after this treatment, an enormous fibro-sarcoma of the clavicle and shoulder had nearly entirely disappeared, Moullin stated that "he had examined both the tumor and the sections made from it and considered it a sarcoma."

Another point that has been raised is that frequently tumors, some of them said to be sarcomatous, have disappeared spontaneously. Wyeth and McCosh[2] each report a case in which, after pyogenic infection and suppuration, the tumors disappeared, but Bland Sutton,[3] before the Royal Gynecological Society of London, said "that he did not believe in the spontaneous disappearance of any connective tissue or cancerous growths. In no case has the diagnosis been proven by microscopical examination."

Another objection has been to its supposed danger. In only three cases so far as I can learn, has death ensued, due directly to the injection. Two of these occurred from pyogenic infection, and the other from shock.

A. Marmaduke Shield[4] reports a case in which the growth showed shrinkage, but in which the patient died from general pyemia, which he thought due to the injection. In the secondary abscesses found post mortem were the staphylococci aureus. The toxin being made from the streptococci and then sterilized, could not have contained the staphylococ ci, but they must have been forced into the circulation from the surface of the tumor, which was a sloughing one, or else the injection was not an aseptic one. Moullin also had a case to die, in which the conditions were the same. In both of the cases the fluid was proven to be sterile, and the greatest care was said to have been exercised in preventing infection.

Fatalities may be prevented by properly graduating the dose and by care in injecting the cases, particularly the suppurating ones.

At all events, admitting that it is dangerous, and that only a limited number of cases of true sarcoma have been cured, a hypothesis which I do not believe, the miraculous results that have been obtained in this absolutely fatal disease, justify any measure, not in itself directly destructive to life.

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1 Medical News, 12, 24, 1898.
2 Annals of Surgery, Vol. XXV., page 175-176.
3 Ibid.
4 Am. Journal of Med. Sciences, Vol. CXIII, page 726.

An Interesting Case of Urinary Calculus.

By M. BOLTON, M. D., Rich Square, N. C.

Early in the morning of January 16th, 1899, I was hastily called four miles in the country to see Mr. A. W., a white man, who, the messenger stated, was suffering with colic. I found the patient suffering intensely with the usual symptoms of nephritic colic—sharp, lancinating pains in the right side, running down the course of the ureter, retraction of the testicle, severe grating sensation in the glans penis, almost constant desire to urinate, but voiding very little high colored urine,

occasional efforts at vomiting, and rigid contraction of the abdominal muscles.

On inquiry, I found he had been suffering in this way since Sunday night (about thirty-six hours), the attack coming on abruptly. He had taken no medicine except a dose of patent purgative pills and a dose of castor oil, which had acted freely.

His side and abdomen were nearly blistered with hot water, turpentine and various liniments.

I proceeded to give morphia, gr. ¼, and atropia, gr. 1-150, hypodermically. In half an hour I gave, per orem, a tablet containing acetanilid, gr. 3½, soda, gr. 1, and caffeine, gr. ½, with a quarter grain of morphia. This had the effect of quieting him temporarily, but made him slightly delirious.

Patient's age was fifty-three years, average weight one hundred and fifty pounds; married, family history good, farmer by occupation. Had always been healthy, never having been visited by a physician professionally.

He attributed his attack to some heavy work in which he had been engaged during the past two or three weeks. that of hauling railroad crossties. He stated, however, that he had suffered some dull, deep-seated pain in that side, at times, for a year or two and while he had been practically well he had found that he could not carry any heavy weight on the arm pressing against that side. He referred to it as his weak side.

There was no history of any acute renal or hepatic colic.

I diagnosed it a case of nephritic colic, left a few quarter-grain morphine granules and an equal number of lapactic pills, with instructions to give one of each as necessary to control his pain, and to report to me the next day if he was not relieved, or if he was relieved sufficiently to report in person a day or two later. I did not hear from him until Saturday morning, January 20th, when I was again sent for to see him. I found him suffering in the same way, but not so severely. He had only taken two or three doses of the pills since my first visit (four days previously), his wife giving as the reason that they made him so crazy she could not manage him.

His abdomen was decidedly tympanitic, and bowels constipated, not having acted since my first visit. Temperature 101, pulse full and slightly accelerated, tongue flabby and thickly coated, slight nausea, but no vomiting.

I gave a two-quart hot saline enema, which brought away considerable gas and fecal accumulations.

The pain was more diffused, and the abdomen was so sensitive to pressure, I was not able to make a very careful examination of it. I left eight tablet trituates of calomel, 1-5 gr., soda 1 gr., and ipecac, 1-10 gr., each, one to be given every hour and followed in two hours by half an ounce of epsom salts. I left also a solution of morphia and hyoscyamus, which I disguised as much as possible, and ordered it given as indicated.

The next day, Sunday afternoon, his temperature was 102, pulse 90; still suffering pain, but the character of the pain had gradually changed. It lost largely, its intermittent or paroxysmal character, and was general over the side and abdomen, though the tenderness was more marked in the right side. His bowels had been moved several times and were distended. He was passing very little urine, but the desire was less persistent. I left some three-grain Dover's powder tablets to be given to control his bowels and to quiet him. There having been a history of malaria in his case a few weeks previously, I thought possibly that had something to do with keeping the fever, so I prescribed 20 grains of quinine to be given next morning, five grains to be given every two hours, beginning at 6 o'clock.

Monday afternoon his temperature was 102, pulse 90 to 96; bowels still more distended and acting every three to four hours. Discharges consisted largely of bile and mucous, with considerable tenesmus with every movement; the odor was more or less offensive. The pain was almost entirely relieved except on pressure. He expressed himself as feeling a great deal better, and attributed his supposed improvement to the little brown tablets, of which he had taken only three or four. He had been quiet during the past twenty-four hours, but was delirious—talking and pulling at the cover when left to himself. There was no nausea, but the anorexia which had existed from the first had developed into a disgust for every kind of food; patient losing flesh and strength rapidly. I prescribed salol, gr. 5, and strychnine, gr. 1-60, every four hours, and left a few tablets of opium, camphor, rhubarb and capsicum to be given as necessary to restrain the movements of his bowels.

From this date the case run on for twelve or thirteen days with

very little variation in the symptoms except progressive emaciation. His temperature varied from 100 in the mornings to 103 in the evenings. Pulse 90 to 100; skin hot and dry. Bowels continued irritable, acting several times every day. Stools consisted of semi-liquid bilious matter and mucus; general distension of the abdomen; no pain except on pressure. I was not able to make out any localized induration at any time, but this was rendered impossible by the extreme sensitiveness.

He gradually began to pass more urine from Monday, the ninth day of his illness. There was nothing characteristic it on inspection until Tuesday, the tenth day, when I discovered a suspicious-looking sediment. I took a sample home with me, and on examination it proved to be pus. I could, doubtless, have found it earlier had I examined for it, which I should have done. From that time there began to be a free discharge of purulent urine, though the bladder was retentive and he did not have to pass urine oftener than when well.

Typhoid symptoms continued unabated. Patient lay constantly on his back and slept nearly all the time, muttering and twitching frequently. The treatment was salol, gr. 5, every four hours, and turpentine, 10 drops every four hours, alternately. One of these remedies was given forty-eight hours at a time, when it was discontinued, and the other given. He took 20 grains of Royal Pepsin Co., 20 gr. bismuth sub-nitrate, and 1-60 gr. strychnine four times daily. Diet consisted of milk, egg drams and liquid peptonoids, with a little chicken broth occasionally. I saw him once every day except two or three days when the weather was so inclement it was next to impossible to get there.

About the eighteenth day of his illness he began to have night sweats.

On Thursday afternoon (nineteenth day) I noticed an undue fullness in the right hypochondriac region, but having no idea that an abcess was forming in that position, I was not satisfied as to the nature of it. On Friday afternoon it was more prominent, and I thought I could make out slight fluctuation; but the general distention of the abdomen and tenderness on pressure, made it impossible to make a rigid examination.

I inserted my hypodermic needle deep down through the most prominent part of the enlargement and drew out a syringeful of

pus. I could not discover any odor of urine or appearance of bile in the sample of pus. I suggested an operation, and was directed to exercise my judgment and do whatever I thought best.

Dr. Joyner, of Woodland, was sent for to meet me next morning at 10 o'clock. We both arrived on time and examined the case together. There was no longer any question as to the presence of pus, but as to its cause and source there was a cloud of doubt. The site of the abscess settled the question as to apendicitis or nephritic abscess—as we thought. While there was pyuria it was certainly most improbable that an abscess in that region would be draining through the ureter.

We concluded that the symptons of kidney colic, which played such a prominent part in the early history of the attack, were reflex, or possibly there was a coincident nephritic colic.

We had a most unpromising patient for operation—pale, weak, emaciated. It was uncertain as to what extent the operation might have to be carried. We decided to do the best we could under the unfavorable circumstances, and acting upon that surgical law which is now generally respected—to let out pus wherever found—we placed the patient on a table, disinfected the surface, and commenced the administration of ether. He did not take the ether well and we changed to chloroform. Respirations and pulse became alarming, and both had to be discontinued before he was thoroughly anesthetised. I proceeded to make an incision about two inches or more in length, corresponding with the course of the rectus muscle and at the place where I had made the exploratory puncture with the needle ; which was in the right hypochondriac region, in close proximity to the gall bladder, immediately beneath the cartilage of the lower ribs. Two pints or more of ordinary pus escaped. On exploration with the finger the pus was found to be perfectly encysted and the abscess cavity contained a calculus of considerable size. It was rather an agglutination of four or five distinct calculi projecting in different directions and weighing about sixty grains when first extirpated.

The cavity was irrigated with a bichloride solution, 1 to 2000, a rubber tube inserted, and the wound dressed with iodoform gauze and absorbent cotton. Patient was replaced in bed, hot applications applied and stimulants administered.

It was with great difficulty reaction was established. For six or eight hours his condition was critical. The following

morning he had less fever, but there was no change in the character of his urine or the condition of his bowels. There was undigested milk in the feces, but he had taken an excessive quantity. The abscess cavity was again irrigated, but I could not wash it out satisfactorily. He began to improve from that date—was clear of fever in a few days, tongue cleaned off, appetite improved, tympany subsided, and bowels became regular or rather constipated. After the fever had gone off, I gave him syr. hypophosphite comp. in full doses three times a day before meals, and five grains of salol between meals and at bed time, alternating every forty-eight hours with turpentine, ten drops at the same hours.

The evacuation of the abdominal abscess did not seem to have any effect on the pyuria at the time of operation, nor has the amount discharged from it since borne any relation to that from the kidney.

There was considerable pus in his urine (though varying in quantity) until about the first of April, since which date there has been only a trace. The abdominal abscess still continues to discharge freely. I have experienced great difficulty in keeping it open.

He has had a voracious appetite and perfect digestion, and has about regained his usual weight, though he is still weak, and while he can do no manual labor, he has been able to attend to his business for about two months. During the past two and a half months he has taken tonics, lithiated hydrangea, and calcium sulphide at different times, leaving off all medicine for a week or more from time to time.

Now, Mr. President and gentlemen, it may be that I have consumed an unnecessary amount of the valuable time of this Convention in reporting this case, but my only excuse is that to me it is a most interesting and unique one. Dr. Joyner and I were of the opinion that it was a biliary calculus. To settle the question as to the nature and source, I sent it to the editors of the *Charlotte Medical Journal* to be examined, and it was turned over to Dr. Pressly, the Secretary of this Society, for analysis. It proved to be a renal gravel.

I can not understand how so large a multangular calculus could find its way, contrary to the laws of gravity, to that position in the abdominal cavity.

There evidently existed in this case a suppurating track from the pelvis of the kidney or upper dilated portion of the ureter to and beyond the site of the gravel, divided by inflammatory adhesions into two distinct abscess cavities ; one discharging through the ureter and the other through the external opening. I saw the patient the day before I left home, and the discharge of pus from the external opening is greatly reduced in quantity and there exists the slightest trace of it in his urine. He is much improved in every way, and I believe will get well.

Gun-Shot Wounds—With Report of a Case of Gun-Shot Wound of Stomach.

By DR. R. E. ZACHARY, of Wilmington, N. C.

Being resident physician of the Wilmington City Hospital at the time of the well-known race riot, in November, 1898, opportunity was given me for the study of gun-shot wounds of most every description.

Nov. 10, 1898, fourteen wounded men, two whites and twelve colored, were admitted to the hospital. It may be a singular coincidence that all except the two white were shot in the back, one of them being wounded in the bottom of the foot. All recovered except two colored men, who died shortly after being admitted. Of the twelve who recovered only two were seriousuy hurt. The lungs of these two were pierced, most of the rest were flesh wounds. No bones were broken.

Bullets were probed for and most of them extracted, counter drainage formed whenever possible. The wounds all were washed daily with hydrogen peroxide, and left open, with the exception of plain gauze dipped in a bichloride solution 1-5000, and applied. This treatment was successful and twelve of the fourteen will perhaps live to tell their grandchildren of their experience in the famous Wilmington race riot, how bravely they stood up and faced the enemy.

The following is a report of an accident gunshot wound of the

stomach, and treatment: G. F. White, age 15, male, shot himself accidentally, Jan 25th, 1899.

After eating an unusually hearty dinner he went to his room for the purpose of cleaning his pistol, a No. 32, after which he reloaded it, and, holding it directly in front of him, about on a level with his chin, and attempting to close it, it fired, the bullet entering his body two and one-half inches below, and to the left, of the xyphoid cartilage, and lodged in the muscle one inch to the left of spine and just above crest of ilium. I reached the patient about one hour after the accident occurred and found him suffering from shock, countenance pale, pulse rapid and weak, lips blue. Morphia, atrophia and strychnia were given at once, hypodermically. The patient had just vomited between one quart and one-half gallon of food and blood mixed. A second time he vomited almost pure blood, the third time there was only a trace of blood, and the fourth time no blood at all. Several physicians were called in for consultation, most of whom were in favor of opening the abdomen and exploring. Would such a procedure have been advisable?

As I stated before, the patient was suffering from shock, and had an operation been advisable, the subject was too weak to bear it. What stopped the hemorrhage?

As stated in the beginning, the boy had just eaten an unusually large dinner, and the stomach was distended. After the bullet had passed through and the hemorrhage begun, patient vomited, emptying the stomach of its contents, giving it an opportunity to contract, and it is reasonable to suppose that after this contraction the hemorrhage ceased.

In less than three hours after the accident patient had passage without a sign of blood, so it is natural to suppose that there was no wound further along the bowels than the stomach. Patient urinated as usual, so the kidneys, bladder, ureters, must have been untouched. There was no sign of injury to the patient except that of the stomach, and hemorrhage from this wound had ceased, but leaving patient in a weak condition, and thinking an operation not advisable the following was the treatment: The bullet, which was only about two inches from the surface, was extracted, giving excellent drainage to the wound at both ends. Both wounds were left open and only a bichloride dressing used. Now there were two wounds in the stomach and

in order to prevent hemorrhage, nothing was allowed to go into it. To give the wound a chance to heal there must be perfect rest of stomach for at least three weeks or one month, so for three long weeks not one thing, not even water, was allowed to go down his throat. All nourishment and medicines were given him externally and per rectum. Knowing it to be a very difficult case, I did the nursing and was with him almost constantly the first seven days, and during this time his temperature ranged between 101 degrees and 105 degrees F. For the first three days he was given an ice bath every hour, after which he was sponged in alcohol and after this when his temperature exceeded 102 degrees F. he was bathed and sponged until temperature fell below 102 degrees F. For one month an ice bag was kept constantly to his abdomen. Milk, warm coffee and whiskey were given per rectum every three or four hours. He would retain about three pints of milk and four to eight oz. of whiskey daily.

Strychnine gr. 1-50 was given hypodermically, three or four times a day, mouth mopped thoroughly every two or three hours with mixture of listerine, glycerine and water. Morphine, whenever required, was given for pain. During the period that his temperature was so high the patient was unconscious. On the twenty-first day patient was allowed to have one table-spoonful liquid peptonoids every four hours, per mouth, and at the end of one month was given milk freely, but was not digested, so this was stopped. In a few days he was given Mellin's food and seemed to thrive on it. Even the most digestible food would cause pain in the stomach, so it was necessary to be very careful. After about the fourteenth day patient began to improve. When the accident occurred he weighed 145 pounds, but he got down to less than 90 pounds and improved very slowly, was not able to leave his bed for three months from the time of the injury, but now he is well and hearty and doing good work.

Report of a Case of Tumor of the Brain Symtomatically Relieved by an Exploratory Operation Upon the Skull.

By WILLIAM BROADDUS PRITCHARD, M. D., and JNO. A. WYETH, M. D., of New York.

Tumors of the brain constitute a comparatively small but exceedingly interesting and important group among the diseases to which human flesh is heir. Within the past ten years, a period devoted chiefly to the observation and study of affections of the nervous system and the mind, I have personally seen only 15 cases in which a diagnosis was tenable with any certainty, and it is quite possible that autopsy would have failed to confirm such diagnosis in appreciable percentage of this total. In eight of the cases, however, in which either the autopsy or operation afforded opportunity for confirmation the tumor was found. The interest attaching to the subject, while entrancing, is, unfortunately rather pedagogic than practical. I do not believe that this is necessarily so, however, and one object and the chief one, in presenting the subject to your attention is that of aiding in establishing the converse of this proposition. There is no single problem in clinical neurology so protean in its symptomatic aspects, so fascinating in its attractiveness, so uncertain in developmental possibilities, and finally so gratifying to the student enthusiast in its irrefutable demonstration, as that of tumor within the cranial cavity and of the cerebral structures. The full and intelligent study of this condition involves a masterly grasp of the entire subject of cerebral anatomy, physiology and localization, as well as thorough familiarity with the recorded facts of empirical experience. Even this degree of knowledge is insufficient in the absence of common sense, since the importance of the personal equation of the patient in intelligence, education, environment and heredity enters largely as a factor in diagnosis. The importance of the subject scarcely needs emphasis. Tumors of the brain are essentially fatal. The vis medicatrix naturæ, that most potent ally of the physician in ordinary disease, is as helpless here as impotence itself. The fate of the victim of tumor of the brain, if nature alone be depended upon, is no less desperate than that

embodied in the inscription which marked the portals of Dante's Inferno, "Leave hope behind, all ye who enter here." The utmost attainments of medical art are almost equally futile. I have yet to learn of an authentic case of spontaneous or medically induced recovery from intracranial tumor, except possibly cysts. Gumma I exclude The stimulus to effort which is embodied in this statement is, or at least should be, all powerful. To cope with disease successfully, with the assistance of nature, represents a degre of usefulness which should not be despised. To cope successfully with disease unaided, is self-evidently the greater accomplishment and represents the highest possibilities of the art. The ultimate and ideal aim of medicine is mastery of disease regardless of coadjutant factors. For the present he is a fool who disregards any source of help. To aid in saving life is worthy, to save life should be the very acme of our effort. I shall not burden you with a resume of the abstract clinical facts of brain tumor. To cover the subject adequately would necessitate a paper far beyond the time limit permitted by the occasion. The subject is exhaustively considered in many standard text books, and monographs, and is probably familiar to my audience. Many if not most of the clinical facts correllated to the subject are illustrated in the case to which I desire to call your attention. I beg your indulgence in advance for a case history which almost necessarily may appear prolix.

The patient, P. L. B., was first seen by me November 20th, 1897, at his home in Asheville, N. C., in consultation with my friend, Dr. H. B. Weaver. The object of the consultation was to determine the nature of an epilepsy from which the patient suffered. The following history was obtained: P. L. B., male, aged 30, married, merchant by occupation, family history negative, personal history free from any record of serious illness or injury up to 1882. During the spring of 1882 patient was suddenly attacked with a fulminant and severe form of cerebro-spinal meningitis. His occupation at that time was that of a farmer in a mountainous region of Western North Carolina, a locality subject to recurring epidemics of cerebro-spinal meningitis. His attack was of some five or six weeks duration, recovery being apparently complete, the disease leaving no nervous sequelæ. Six months later the patient suffered from his first (so far as known) epileptic attack, which occurred at night, without

warning or assignable exciting cause. This convulsion was general in distribution and of comparatively severe type, the tongue being bitten. Subsequently other attacks followed, always at night (two diurnal attacks only in seven years), always general, always without aura. His condition remained practically the same up to 1889, except that the average number of seizures increased from two or three to five or six a month, the paroxysms preserving the same characteristics. In 1889 he moved his residence to Asheville, and changed his occupation from farmer to merchant. For three years subsequently and without other assignable cause than that of change of residence and occupation, he remained absolutely free from these attacks, his health being, to quote his own language, "perfect." In 1892, without any known cause, the epilepsy recurred, but in an entirely different form. While an occasional nocturnal attack would occur, the majority of the seizures were diurnal. Instead of being general and severe as formerly the attacks were lighter and often unilateral and occasionally without loss of consciousness. Very many of these later attacks were preceded by an aura consisting of a strange and indescribable sensation in the left side (leg and arm) and with an initial motor spasm or signal symptom in the left foot. In exceptional instances this signal symptom was limited to a tonic rigidity of the toes, chiefly the great toe. Quite often the entire seizure would consist of the sudden aura described, with a succeeding tonic rigidity of the foot muscles. More frequently the spasm would extend quickly up the leg, thence to the arm of the same side, next to the left face, ending in unconsciousness and sometimes generalized tonic and clonic movements of the muscles of the entire body. Usually the interval between the aura and the spasm permitted sufficient preparation to prevent injury from a fall. Occasionally the upward extension of the spasm, beginning in the foot, could be prevented by pressing the foot against some object or by grasping in constriction the thigh of the same side. These paroxysms varied considerably in frequency. Eight or ten, or even more, might occur in a day. On the other hand, he would sometimes remain for several days, perhaps, free from attacks. During the interval he suffered greatly from severe headaches associated with vertigo and occasional though infrequent sudden vomiting. The headaches at

times were said to have been agonizing. Minor occasional changes in temperament and emotional stability were noted, but intellectual processes proper are said to have remained unimpaired. During the summer of 1897 the patient noticed a gradually developing weakness of the left leg and arm which slowly but steadily increased. At about the same time he began to notice peculiar disturbances of vision. He would suddenly become blind. "I would have to stand still for a few minutes, when my sight would just as suddenly return," to quote the patient. An extreme polydipsia developed, as much as two gallons of water being consumed in a day. There was, of course, a corresponding polyuria. There were no other subjective symptoms except numerous inconstant and very variable paresthesia of the left side.

Physical Examination.—The patient appeared a well-developed and fairly nourished man of about the age given. Mentally I observed no variation from the normal. Memory, reason and judgment seemed unimpaired. The mental reflexes were quite normally active. I observed no emotional instability whatever. Motor and sensory speech were normal. Taking the cranial nerves in numerical order, the sense of smell was not affected. In testing vision I found a fair perception of light with a bare perception of form. Opthalmoscopically the fundi showed well advanced double optic neuritis. The opthalmoscopic findings were established by Dr. ——— of Asheville, and later by Dr. Marple of New York. The extrinsic muscles of the eye (3d, 4th and 6th) were normal and the eye was moved freely in all directions. There was no sensory impairment in the area supplied by the fifth. Innervation of the facial muscles was about equal on the two sides and there was no asymmetry. The auditory nerve was intact on both sides. There was no impairment of taste. The vagus was not affected. The tongue was projected without deviation. Examination of the upper extremities showed decided ataxia of the left arm and hand. Forced flexion and extension of the muscles of the arm and forearm showed distinct weakness of the left as compared with the right. Left hand grasp by dynamometer, 28 ; Rt. 70, No atrophy. Slight tremor of *right* hand and arm on extension. Tact, pain and temperature sense, normal and equal on the two sides. Muscular sense impaired on the left by comparison with the right. Wrist and triceps reflexes

exaggerated on the left. Lower extremities: gait hemiplegia with drag of left foot. No contractures, but slight spasticity of left leg. Flexors and extensors of left leg, ankle and thigh distinctly weaker than right. No Romberg present, but was unable to stand on left leg alone. Left knee jerk quite actively exaggerated and clonus present on left side. No atrophy. No sensory impairment was demonstrated at this time. The tests employed were, however, not at all elaborate or delicate in detail. There were no rectal or vesical symptoms. A summary of the facts related, obtained from the history and a personal examination, led promptly to the diagnosis of brain tumor, the symptoms constituting an almost classical group. It seemed equally legitimate, basing the conclusion upon the nearly always constant aura of paresthesia of the left leg and arm, and of a signal sympton or initial motor spasm affecting the left foot and leg, to assume that the tumor was located in the upper third of the rolandic region of the right side. The frequent occurrence of spasms limited to the foot alone and sometimes to the toes, pointed to the post-central rather than the præ-rolandic area. The sensory aura and the disturbance of muscular sense in the upper extremity, together with the apparent non-involvement of mentality, at least in its higher spheres, seemed consistent with and indeed confirmatory of this view. The absence of family or personal tuberculosis or syphilis and of cancerous tendencies, together with the empirically known fact that gliomatous growths are next perhaps in frequency, served as a basis for a presumptive diagnosis,, from the pathological standpoint, oi glioma or gliosarcoma. The etiological relationship of the preceding cerebro-spinal meningitis offered many conjectural possibilities, but nothing positive and little if any precedent. The prognosis was necessarily pessimistic and in extreme degree, with one modifying possibility, and one alone. Assuming the diagnosis to be correct, the one chance for life lay in the direction of surgical interference. Following a time-honored precedent, the value of which I have confirmed through personal experience, I advised that the patient be put upon steadily and rapidly increasing doses of potassium iodide. If, after reaching a daily dose of 300 grains, attainable in a month or six weeks by gradual increase, no improvement should result, I advised that the patient be sent on to New York, placed in the Polyclinic

Hospital, there to be watched by trained attendants under my supervision, and if the symptoms observed confirmed the diagnosis already made, then open the brain and, if possible, remove the tumor. Should death occur from operation it would be only an anticipation by a few weeks or months of a fate which was inevitable, and the patient would have the benefit of a legitimate euthanasia. My advice was followed to the letter. The iodides proving useless the patient came to New York, accompanied by Dr. Weaver, and was admitted to the Polyclinic Hospital. Within less than a week the history as already given was confirmed. The symptoms had meantime progressed markedly. The patient was totally blind. Beginning atrophy had succeeded the neuritis. He was completely helpless, the hemiplegia having become almost absolute. The spasms had increased, as many as twenty or more occurring sometimes daily. The headache was excruciating and continuous. Insomnia added its agonies to the picture. The patient begged for death and expressed himself as more than willing to take any risks involved in surgical interference. Preliminary to the operation I made a further and more elaborate and exact examination of the patient. In additiou to the demonstration of the symptoms already mentioned, which differed from former observations only in degree, I noted the following exceedingly interesting sensory and other phenomena. In the lower extremity (the leg) there was present decided defect of tactile sense. He was unable to distinguish cotton or cloth from wood or the touch of the finger. When touched at more than one point he was totally unable to determine the number of points of contact. A peculiar ataxia or allochiria of tactile perception was manifest. When touched on the left leg he would say it was the right. When touched on the left foot he would refer the tactile impression to the knee or thigh perhaps. This was true also of pain sense. He was unable to differentiate differences in the degree of pressure or weight upon the leg and was totally unable to duplicate accurately with the right leg or foot the various positions into which I put the left leg. At this time a very marked and aggravated degree of tremor was noticed on the sound side (the right) on any muscular effort involving extension of leg or arm. The scalp having been shaved, several observations were made as to differences in surface temperature upon the two sides of the skull. The results

were not entirely negative, but they did not admit of any positive conclusions. A distinct and constant difference was, however, plainly evident in the percussion note over the parietal region of the two sides, decided and constant increase of dullness being noted over the right as compared with the left. This difference was demonstrated upon several occasions and was invariably present. These symptoms were construed as confirming the localizing diagnosis placing the tumor at or beneath the post-Rolandic or post-central convolution on the right side in its posterior and lower segments adjacent to and probably involving (from the sensory symptoms) the supra-marginal and angular gyri. I hesitated in an opinion as to a cortical or subcortical localization, for obvious reasons, but leaned rather to the subcortical in view of the fact that purely mental processes were absolutely intact. That the cortex was *involved* I felt no doubt, and I also believed that the tumor was accessible surgically and probably removable. On January 20th Dr. Wyeth operated.

REPORT OF THE OPERATION.

On the 20th of January, 1898, at the New York Polyclinic Medical School and Hospital, the following operation was performed on Mr. P., of Asheville, N. C.

A diagnosis of a tumor near the right fissue of Rolando at the lower border of the upper third, posteriorly, had been made by Dr. Pritchard, who had carefully studied the case from the standpoint of a neurologist. A large horseshoe-shaped incision was made through the scalp down to the cranium. The convexity of this incision was near the median line of the skull and extended toward the temporo-parietal suture about four inches, there being about three inches between the sides of the incision. The bone was exposed by separating the scalp on either side of the line of incision for about a quarter of an inch, leaving it as closely adherent to the bony flap to be elevated as was possible. With a small sharp chisel the bone was now furrowed, and with the aid of the DeVilbiss rougeur, the bone was entirely cut through in line with the primary incision. The completion of the operation was postponed, as is my custom, to the following day. The following day this flap of bone was fractured across the point between the ends of the incision, and with the adherent scalp was turned down over the patient's ear. The dura mater was incised in the same

line as the original flap and this was also turned down and the brain exposed. By careful exploration with the dull end of a long Hagedorn needle, the tumor could be distinctly felt, measuring more than two inches transversely and so deep-seated and so far from the surface that its removal was deemed unjustifiable. It was found impossible to stitch the dural flap in position, as the brain bulged through the opening, and as this membrane had been worn to extreme thinness by the long continued pressure of the brain the sutures did not hold. The trap-door of bone and adhering scalp was restored about to its original position, leaving one-half inch for relief of pressure.

The patient did well after the operation despite the development of a *fungus cerebri*.

Several interesting problems present themselves in connection with this case. I shall confine myself, lest I trespass too far upon a tolerance taxed I fear already to the limits of courteous endurance, to two aspects alone. To what extent is surgical interference indicated or permissible in tumor of the brain? What is the explanation of the symptomatic relief obtained in this case, in which the tumor was not removed? The two problems are correllated to such a degree as will permit of their joint consideration. The facts of experience, personal and impersonal, justify, I believe, the acceptance of the following propositions: Tumor of the brain, per se, is essentially fatal regardless of pathological type or location. Possible and rare exceptions are tubercular and cystic neoplasms. Syphilitic gummata should not be considered a variety of brain tumor. Surgical interference is the only hope, and is not only indicated but imperatively demanded. In a small proportion of cases, depending upon location and pathological type, surgical procedure may prove curative. Ferrier states this proportion as 13 per cent., which seems rather optimistic. In many cases, Ferrier says, more than 50 per cent., surgical interference offers the probability—indeed a reasonable certainty—of symptomatic relief and prolongation of life. Results here also vary in degree, though less so, with the factors of pathogenesis and locality. In all cases, regardless of pathological variety, localization or multiplicity of lesions, osteoplastic operations upon the skull are not only permissible but indicated, since they offer the only hope, and under proper precautions and technique exploratory entrance of the skull

involves but little danger to life per se. Such operations should, by the way, be always primarily exploratory.

With regard to the second problem, theories rather than facts must necessarily enter into the answer. In the case presented the tumor was not removed and yet the patient (who I feel confident would have been dead long ago but for the operation) is not only alive, but is, and has been, free from headaches, epilepsy and all other irritative symptoms for more than a year, has recovered his general health and strength and *is* able to make a living. To what does he owe his improvement?

The results in this case are not unique, many similar instances having been recorded, notably several which were reported at the meeting of the British Medical Association in Edinburgh just a year ago by Horsley, Waterhouse and others, and by Kramer, of Cincinnati. Irritative symptoms may be and often are due in intracranial tumor to increased intracranial pressure. The relief of such pressure by opening up the skull suggests an explanation. I cannot believe, however, that such relief would be either permanent or prolonged. Our patient, eighteen months after the operation, is still free from irritative symptoms.

Another theory suggests itself: The operative field, it will be remembered, was subsequently filled with an enormous hernia cerebri. The major part of this hernia eventually sloughed off, aided by a ligature. Why is it not possible, and indeed probable, that the tumor, following the law of all neoplasms, which is growth in the direction of least resistance, should have grown out of the cranial cavity with the hernia and been sloughed off with it? I believe this theory to be additionally probable if, as assumed, the growth was gliomatous. There is some precedent in support of this theory. My friend, Dr. Weiner, of New York, in his report of a somewhat similar case, with enormous hernia cerebri following the operation, found on microscopical examination of the hernia tissue that it was chiefly composed of cancerous tumor elements. Still another theory has been advanced, to the effect that surgical trauma is sometimes pathologically alterative, so to speak, as for example in the effects from scarifying ulcers. This last hypothesis seems to me to be least entitled to credence and I do not offer it with any personal endorsement whatever.

105 W. 73 St., N. Y. City.

REPORT OF THE SECTION ON MATERIA MEDICA AND THERAPEUTICS.

Progress in Serum Therapy.

By CHAS. S. MANGUM, A. B., M. D., Prof. of Physiology and Materia Medica, University of North Carolina, Chairman.

SINCE bacteriology became a science, the most earnest efforts have been put forth by eminent medical men to isolate for every infectious disease some specific micro-organism, thus leading to a clearer understanding of many phenomena and a more rational treatment in numerous cases. To what extent these efforts have succeeded is abundantly shown by the marvelous growth and development of this comparatively recent science. Year by year new and important discoveries augment the invaluable fund of knowledge which has already been added to the literature of medicine, until we have now reached a point where it is fair to concede that the present generation will probably see every dreaded infectious disease accurately classified according to the micro-organism to which it owes its fatality. Parallel with this search for specific eteological factors, there has been inaugurated during recent years in the physiological laboratories most comprehensive researches into the vast new field of therapeutics opened by the better knowledge of the diversified activities and characteristics of bacteria. With the knowledge of toxins and toxalbumens came first the supposition and later the proof of the presence of the so-called anti-toxins, powerful immunizing principles, of unknown chemical composition, but undoubtedly possessing the power either to destroy the micro-organisms themselves or neutralize and render harmless the toxins elaborated by them. The profession is more or less familiar with the surprisingly successful results obtained by

serum therapy, which though still in its infancy, has already been conceded to be one of the greatest therapeutic discoveries of the century, giving promise of new life to thousands. Launched from the laboratories in the early eighties, it at first met with most discouraging results, and for years was under a cloud of disapproval, and this cloud has not yet been wholly removed. But its advocates persevered, and in 1894, with the introduction of Behring's anti-diptheritic serum, it began a career which has lifted it steadily into favor, until now the beneficent nature of the treatment has been established, at least in part, beyond all doubt or question.

It is readily apparent to one watching the progress of the year in the treatment of diseased conditions, that the profession, whether consciously or unconsciously, is basing its principal hope of material advancement in therapeutics upon the experiments now being made with different anti-toxics serums. So great is the interest aroused in these new remedies, that a report of progress in therapeutics and materia medica practically resolves itself into a report of new serums of real or imaginary worth. It is evident that the tendency of the present time is to depreciate to a great extent those remedial measures by means of which we have been wont heretofore to strengthen and aid the natural functions, and hunt for a curative and immunizing serum for every poison that threatens the life of man. As is always the case with new theories, the claims of serum therapy will doubtless be pushed by enthusiasts to an almost ridiculous extreme. Then the pendulum will swing back and anti-toxins will take their place among other remedies upon our lists according to their proved efficiency. At this time the data are still too incomplete for one to gauge the future scope of this new method of treating infectious diseases, but encouraging progress has been made and for so short a time the results have been little short of marvelous. Whether serum therapy will broaden out and develop as rapidly as did the science with which it is so closely allied, or whether it will prove to be in a large measure a popular fad and of only a sadly limited sphere of usefulness, the near future will disclose, but the present gives promise of a future which will practically revolutionize our methods of treating all those diseases whose symptoms are due to the presence in the body of poisons of bacteriological origin.

To quote an eminent authority: "Serum therapy has merely entered the first stage of its development, and already the results are of much value. The mortality of diphtheria has been reduced from 40 to 8 per cent; the mortality of hydrophobia has shrunk at least from 16 to 1 per cent; the prognosis of tetanus has been deprived of much of its gloomy forebodings; the cure of pneumonia, of tubercle, of erysipelas, and of septicæmia, is seemingly on the eve of being realized; a complete demonstration has been obtained of the power of antivenins to prevent the toxic and lethal effects of venoms; and the experimental data are surely being accumulated with a view to the discovery of anti-toxic serums for the cure of yellow fever, the bubonic plague, Asiatic cholera, typhoid fever, cerebro-spinal meningitis, and even of leprosy and syphilis. The anti-toxic treatment of diphtheria has made the most pronounced progress towards permanent establishment, being now almost universally accepted by the medical world. The experience of the past year has served to place this treatment in a position practically unassailable. The literature on this subject has grown to be almost voluminous, and statistics without end have been brought forward, showing such an enormous decrease in the rate of mortality under the new treatment, that by many it would be considered a crime for any intelligent physician to refuse to employ this means of succor when it is so readily within his reach. Having accepted this serum as a remedial measure it is now the aim of the profession to improve it and obviate any of the disadvantages which may attend its use. The resulting joint pains and swellings and the cutaneous eruptions have been shown to be due to the use of an heterogeneous serum and not to the anti-toxin as at first supposed. It is proposed to avoid these unpleasant effects by the use of highly concentrated serums, where the number of anti-toxic units to each cubic centimeter of serum is very large, causing the volume of serum necessary to a dose to be small; and by thoroughly filtering this serum through an extremely fine filter, thus getting rid of all extraneous substances. It has been clearly demonstrated that the most useful sphere of diphtheria anti-toxin is to be found in the realm of preventive medicine, as a prophylactic and immunizing agent. In close communities, as asylums, hospitals, schools, etc., where the gravest danger is to be feared in the development of secondary cases, the results have been most satis-

factory, the disease in many instances reported, having been effectually stamped out before it could gain a foothold. This in itself may be considered a great triumph. To obtain the best results from this serum as a curative measure, it must be administered early in the course of the disease, before the ravages of the poison have become too great; the initial dose must be large, in some cases even amounting to as much as 3500 or 4000 units; the dose to children should be relatively much greater than that administered to adults, because the most virulent cases occur among children; and finally none of the usual precautionary measures should be neglected as aids to the treatment, simply on the ground that a specific should be expected to accomplish all things. The opportunities for testing the value of tetanus antitoxin have been far less numerous than in the case of diphtheria, because of the rare occurrence of this disease. The statistics are as yet wholly inadequate and insufficient in total number, and do not admit of a positive and definite report, though the mortality of tetanus has undoubtedly been reduced to a marked degree since the introduction of the antitoxic treatment. The effects of the serum are immediate in those cases where it is employed early, an amelioration of all the symptoms being at once apparent. It is claimed that when injected subcutaneously it only acts on the bacilli and toxins actually present in the blood, and does not readily come in contact with the toxins in the nervous systen. Hence the necessity for a larger dose than that now given, and an earlier administration of it, so that the poison may be met in the blood current and conquered before it eludes the pursuing anti-toxin.

As the lethal effects of this bacillus are chiefly exerted upon the nerve elements, some of the most enthusiastic advocates of the treatment have scorned all obstacles and injected the antitoxin directly into the brain substance itself. They report most beneficient results, but to the general practitioner the intra-cerebral injection of any serum, however potent, still savors highly of fanaticism, and the statistics must necessarily be both more numerous and convincing than they now are, ere he may be expected to accept this procedure as altogether the proper thing to do.

To a much less degree than the two preceding, though steadily, Marmorek's antistreptococcus serum has gained favor during the past twelve months. As a remedy against erysipelas and septicæmia it has without question done much good, and has yielded

most favorable results in many cases, though its action seems to be most unfortunately limited to strictly pure streptococcus infections; and since we do not possess the privilege of selecting the exact infection we would prefer in any given case, but must accept mixed infections when they come, this limited action becomes a very serious stumbling block to the successful advancement of this new remedy. The serum is still unstable and unreliable, as well as often impure; hence it must be handled with care, else it might prove a two-edged weapon and cause a double infection where immunity was sought. It is still too soon to pronounce authoritatively upon the value of streptococcus serums, but their use has been so productive of successively better results, that it is well to maintain an opimistic view until experiments have brought out more satisfactorily the details as to methods of preparation, preservation and application. In December the American Gynecological Society appointed a committee to investigate anti-streptococcus serums and report in May. The publishing of this report is now awaited with much interest.

Other anti-toxins for the cure of pneumonia, cholera, the bubonic plague, typhoid fever, tuberculosis and snake venom, are passing through the experimental stage with varying degrees of success. But their place is still in the laboratory and in the hands of the most careful observers, nor should they be hysterically thrust upon the general profession until the proof of their potency and value as therapeutic agents has been established beyond all reasonable doubt. They represent, however, the first steps taken in a field of almost boundless extent, which holds truths that medical science will yet convert into blessings of priceless value to mankind. A brief summation of the present position of serum therapy may be made as follows:

In diphtheria alone has it proved a complete success, though it has been very efficient in both rabies and tetanus, and to a lesser degree in erysipelas and septicæmia. The evidence is strongly in favor of an early demonstration of the power of anti-toxins to protect against cholera and the plague, and probably also against snake venom. Work with all the other serums is yet purely in an experimental stage, and nothing definite or satisfactory has so far been accomplished.

There are two great obstacles to the general introduction and use of anti-toxic serums. One is the large bulk which it is neces-

sary to inject in order to obtain a sufficient number of anti-toxic units ; the other is the enormous expense of preparation. The first is being rapidly removed by the preparation of highly concentrated serums by inoculation with the most violent cultures, the ideal aimed at being of course the isolation and complete separation of the anti-toxic principle from the serum, and its subsequent injection in a sterilized solution. The expense of preparation is still a most serious problem and will be likely to place this means of preserving life entirely out of the reach of many classes of patients for years to come. A case is reported in which over one hundred dollars worth of tetanus anti-toxin was used within a fortnight. The treatment was a success, the man recovered and was no doubt considered a more valuable citizen after the experience than before.

In *Science* of March 10th, 1899, may be found a report of experiments now being carried out in Munich in connection with enzymes as remedies in infectious diseases. It is a well known fact that the "bacillus pyocyaneus" when injected has the power to counteract the effects of the bacillus of anthrax. It has been demonstrated, as this report goes on to show, that certain kinds of bacteria (bacillus pyocyaneus), produce enzymes which not only dissolve these bacteria themselves, but other microbes as well. The claim is now made that the substances which we have termed anti-toxins, and which lead to recovery from infectious diseases, and produce immunity from them, belong to the enzymes. The authors of these experiments claim to have succeeded in obtaining enzymes which, combined with an animal protein, may be transformed into an immunizing substance, which will be both durable and thoroughly satisfactory. As yet the experiments are incomplete, and the results have not been published in full, but the "time seems near at hand when the treatment with serum will be replaced by a cheaper and simpler method."

DISCUSSION.

Dr. Weaver: In the broadest sense of the word, immunity is the fundamental principle underlying all treatment of tuberculosis. For centuries empiricism and speculation held the sway of treatment of all diseases in the most dogmatic way. But in 1882 a new day dawned upon us in the birth of the germ theory as enunciated and demonstrated by the illustrious Robt. Koch,

when speculation gave way to exact science. Therefore, in the light of the germ theory, immunity becomes the underlying principle of all those diseases caused by a micro-organism.

In view of this broad principle of scientific research, may we not be able to present some postulates which are axiomatic in their nature, which will lead up to a reasonable hypothesis upon which we can base a new or serum therapy of tuberculosis?

(1.) That all germ diseases are caused by a living micro-organism, parasitic in its nature.

(2.) That there is inherent in every living organism a power of protection against parasitic life.

(3.) That this power inherent in the living organism is potent in direct ratio with physical development and normal health.

(4.) That there must be a proper soil for the disease germ as a pre-requisite for the establishment of disease.

(5.) That the proper physical development and normal standard of health are consequent upon a perfect nutrition of the individual.

(6.) That tuberculosis is essentially a local chronic disease, and is slow in exhausting the soil in which colonization has taken place.

(7.) That when colonization has taken place, or the disease has been established, cure can only take place through the phagocytic power of the blood or the chemical change in the blood serum, whereby the bacilli are destroyed, or their toxins are neutralized, whereby we get necrosis or ejectment of the mature bacilli, or encapsulation of the tubercle.

Upon these fundamental principles is established the idea that immunity is, and must necessarily constitute, the basis of serum therapy.

What then is immunity? "Immunity to disease is a freedom from the liability to contract disease because of an innate or acquired condition of the system. In other words it is an uncongenial soil for the development of disease from the disease germs. Soil in the system is a complex condition, possessing both a positive and a negative qualification. It may be a condition of the system in which there is something upon which the disease germs feed and grow luxuriantly. Or it may be a condition of the system in which there is something lacking in the tissues or blood, which, if it were present, the micro-organism

could not get a foothold. Therefore, immunity being conditioned on the soil, it is of two-fold nature, natural immunity and artificial immunity.

Natural immunity is that condition of the system in which there is something ever present which inhibits the colonization of the disease germs.

Artificial immunity is that condition of the system in which the specific pabulum has been taken out of the tissues or blood by prolonged resistance to the implantation of the germ.

The reason why nature in her process of cure, so often fails in acquiring natural immunity, is that tuberculosis being essentially a local, chronic disease, the blood and tissues become devitalized and weakened from malnutrition and the organism fails to manuture, in its slow process, a sufficient amount of anti-toxic fluid to counteract the toxic effect produced by the bacterial product of the tubercle bacilli.

And the reason why artificial immunity has thus far proven a failure is that "the amount of toxin present at any one time in a tuberculous organism is not great, and it would be absolutely absurd to think that by once neutralizing it the disease could be stopped. Owing to the slow production of toxin it is impracticable to charge the organism with a great amount of anti-toxin, since it would have disappeared long before being called upon to act."

Why the molecules of toxin produced by the tubercle bacillus fail to combine with the molecules of artificial anti-toxin introduced into the system, as they all the time and continuously do, with the molecules of anti-toxin produced by the tissues of the organism, is as yet unknown. It must be on account of the peculiar life history of the tubercle bacillus itself that this binding of toxin molecules occurs in this peculiar way.

DR. E. C. LEVY: The subject is one of very great interest to me. It is not in the line of tuberculosis, however, that I wish to speak, but rather of diphtheria, because it is in that I have had some little experienee. The improvements which Dr. Mangum referred to on yesterday have really not been much in diphtheria anti-toxin during the past year.

In regard to the use of serum in diphtheria, there is one very common error I have seen in the profession, namely, the comparative doses to be used in children and in adults. Dr. Mangum

has well said that the dose should be relatively larger in children than in adults. I myself hold that it should not only be *relatively* larger, but should be actually certainly as great, and possibly even *absolutely* larger. We see this demonstrated perfectly in the laboratory. Here we have two guinea-pigs, one, say, of 250 grams and the other of 500 grams. Toxin in these cases is given to each pig in ten times the minimum fatal dose, so that the 500-gram pig will receive twice as much as the other. On the other hand, we find that the same dose of antitoxin will protect both pigs. Now, if we have two patients, one a child and the other an adult, each with a membrane of the same size and caused by germs of the same virulence, the natural consequence is that in each instance we have an equivalent amount of toxin in the circulation. But in the child's system, the organism being smaller, we have for a given quantity of blood a much greater amount of toxin in the circulation. I maintain that the child should have as large, and possibly a larger dose of anti-toxin than should the adult, and, anti-toxin of diphtheria being harmless, it is perfectly safe to work on that theory.

As yet there is much room for improvement in anti-toxin. I have no doubt we will soon obtain the dry product, which we can use in sterilized solution, and which will possess many advantages and no disadvantages. This has already been done in tetanus, but has not been successfully accomplished in diphtheria toxin. It is also possible that anti-toxins may ultimately be produced synthetically.

Electricity as an Aid to the Physician and Surgeon.

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In presenting this paper on the use of electrity in the treatment of disease, I wish to be understood, that it is not my desire to ignore the value of, or set aside the use of, those time-honored remedies, which in the past have rendered such valuable aid to

us, but to define the uses of this agent as an adjuvant to our armamentarium.

To-day electricity is a science, when only a few years ago it was an art; we have studied its physiological properties and action, harnessed its forces and placed a bridle upon its currents; the instruments now used in its application are the result of tireless study and continued experimental research on the part of the greatest medical electricians of the age, both in this country and Europe, and its use is no longer empirical.

The currents I will briefly refer to in this paper are:

First—The galvanic or constant current.

Second—The faradic or interrupted induced.

In the galvanic current, we are mostly concerned in the chemical and physiological effects, in order to establish its therapeutical value.

The chemical action produced is known as electrolysis, which is nothing more or less than the separation into its component parts, of a compound body in solution, by the constant current: for instance, when a current is made to traverse a solution of chlorate of potassium, oxygen and chlorine are liberated at the positive pole, while hydrogen evolves from the negative, and the potash is seen to collect around it; likewise when the human tissues are subjected to this current, a decomposition occurs, whereby the constituent elements are separated or altered in their arrangement; this is possible because the elements are in a fluid state, and certain effects are produced, varying with the direction of the current and differing at the terminal poles. These effects are known as electrolytic, cataphoric, catalytic, electro-tonic and thermal.

Electrolysis occurs not only at both poles, but throughout the interpolar space, therefore we have positive and negative electrolysis, and that obscure process designated catalysis, which is the indefinable action that takes place in the structures embraced in the path of the current from one pole to the other. Just where the effect of the positive pole stops and that of the negative pole begins, we cannot exactly define, but the effect is always more marked in the immediate vicinity of the poles, while in the intervening spaces the greater the distance from the pole, the more obsure the chemical process becomes.

The body subjected to the action of the current is called

the electrolite, so if the electrolite be the human tissues, the chemical decomposition is somewhat complex, and there is separated at the positive pole not only oxygen and chlorine, but the mineral acids also, the hydrochloric, sulphuric, nitric and phosphoric; while at the negative pole the alkalies of the tissues collect in the form of the hydrates of soda, potash, lime and ammonia.

The cataphoric action of the current is that property which enables the current to carry with it certain substances in solution in its transit through the tissues from the positive to the negative pole; this action is more pronounced at the positive pole with the majority of substances, though with some few we learn it occurs at the negative pole—this is, then, an electrical osmosis, and its power to reverse the normal osmotic action can be easily demonstrated. It this combined action of electrolysis and cataphoresis, that enables us to dispel tumors, to cause their disintegration and promote their absorption by the tissues.

There are many ways in which the use of the galvanic current may aid the surgeon in his work, and the specialist also should be equally interested, for he is often called upon to do much surgical work, and this form of electricity is most useful to them, since by means of it a variety of tissue changes can be brought about, which may be turned to account in the removal of abnormal conditions, and those who are not acquainted with the electrolytic effects of this current upon the living tissues will be surprised to learn how wide is the range of its application as an alterative and curative agent.

The elimination of oxygen, chlorine and the mineral acids at the positive pole, by combining with the albuminoids in the adjacent tissues, causes coagulation, a drying and shrinking of the tissues in immediate contact with the electrode; hence we have an astringent, denutritive, sedative and hemostatic effect, with little or no eschar when the current is applied mildly and of short duration; at the negative pole on the contrary, where hydrogen and the alkalies accumulate, there is a softening and liquifying effect upon the adjacent tissues, and we have stimulation, congestion and relaxation of the parts.

With the positive pole we can cut off excessive blood supply to abnormal vascular growths of whatever sort, be they hemorrhoids or hemorrhagic mucous membranes; and in fact almost any

abnormal growth may be arrested or removed by robbing it of its blood supply, and we have in this agent a simple and efficient means of bringing this about.

The softening and liquifying effect of negative electrolysis is especially serviceable in the removal of non-vascular, dense, horny or warty growths, and even cartilaginous and bony tissue; it is equally effective in the removal and absorption of cicatricial tissue resulting from burns, wounds and inflammations of various kinds, especially when this non-elastic, non-pliable tissue forms along the course of a duct or canal, which, by forming dense unyielding bands or patches at one or more places, causes strictures of these canals. But in the removal of strictures, the surgeon must select a suitable electrode, and insulate it except at the point where action is desired, which is then introduced into the canal until it comes in contact with the constricting band, the anode (or positive pole) having previously been applied by means of a large pad electrode, well moistened, at some convenient place, as the breast, back, thigh or abdomen, and then the current carefully turned on, not to exceed five milliamperes; soon the alkalies (potash and soda) with hydrogen begin slowly to accumulate, and by cataphoresis and increased quantity of moisture are driven to the spot, by which combination of influences, the cicatricial band is softened, rendered lax and yielding, the capillaries and lymphatics are stimulated to take up the effusion and ultimately a degeneration of the fibrous tissue takes place and there results a complete removal of the growth; further, when properly done there is left no eschar, nor is there any excess of tissue destruction beyond that which is desired.

The most important thing to be remembered is the directly opposite effects upon the tissues caused by the action of the anode and cathode when employed as the active electrode.

The polarity must always be chosen with due regard to the work to be done, and the nature of the tissue to be operated upon; for a large percentage of the failures of those who have attempted to use electrolysis in surgery, and who have abandoned and condemned it, results either from ignorance of its application or neglect of the physical, chemical and physiological effects of polarity in the use of it.

There is another physical effect of the constant current which is capable of rendering much aid to the surgeon, and that is, by

this same cataphoric action, solutions of certain substances, such as cocaine, morphine, iodine, etc., placed upon the positive electrode, and brought into contact with the tissues, through the action of this current are made to traverse the tissues to a greater or less extent, depending upon the electro-motive force and volume of the current, thereby inducing local medication, and even general medication if so desired and the drug introduced in sufficient quantity. In this way local anæsthesia is induced or the parts prepared for surgical procedures.

By this means, also, effusions into joints and serous cavities, swellings resulting from bruises, sprains and inflammations are made to disappear and tumefaction subside. It is well to observe the effect of this current also in the treatment of ulcers, lupus, etc.; and here the choice of polarity is most essential in producing the desired result; if there is an exuberant granulation, or the sore is of moist variety, the styptic astringent effect of the positive pole is indicated; if on the contrary, there is diminishing nutrition, and an impoverished condition of the part, presening a want of sufficient fluidity or serum, then the stimulating relaxing effect of the negative pole is indicated. This same process is equally applicable to disease deeply seated in the tissues, as chronic inflammatory conditions of the bones and ligaments, where nutrition of the bones and ligament, is perverted and ordinary treatment of no avail, the stimulating effect of the negative pole is sometimes productive of great benefit.

The electro-tonic action results when the functional activity of the nerves is altered by being subjected to the action of this current; this functional activity, affecting the muscular system also, may be increased or diminished, according to the direction of the current; for instance, around the positive pole, the excitability is diminished, and an anodyne sedative effect is produced, while at the negative terminal, the opposite relation exists, and these effects are not confined to the immediate vicinity of the poles, but throughout the interpolar zone. To explain more fully, if the current traverses a nerve in the opposite direction to the nerve current, there is a diminished electro-tonic force, while if a current passes in the same direction as the nerve current the excitability is increased. The thermal effects of this current result from its efforts to overcome the resistance of the tissues, which sometimes is immense; the skin in its dry state offers enormous

resistance, and the greater the resistance, the greater the heat produced, hence it is necessary to reduce the resistance as much as possible, in order to obtain the desired result, and make the application bearable; to do this the skin should be kept moistened and the concentrated energy of the current distributed over a larger surface, by using a large wire gauze pad, well moistened with a saline solution, the greater the surface area covered, the more the resistance is diminished, and the stronger the current can be applied with less disagreeable effects. A lack of knowledge of these conditions, or a disregard of them, has been the cause of much unsatisfactory work in electro-therapy, on the part of the general practitioner, and has induced prejudice by the laity against its uses.

I will not enter into the details of its application, for it was my intention only in this paper, to define its physiological action and theapeutical properties.

We come now to speak of the faradic or interrupted induced current, its physical properties and therapeutical virtues. In order to understand its nature and comprehend its uses, one should have a knowledge of magnetism and the laws governing it. We are led to believe "magnetism to be some active condition of the ether, that is, one of the manifestations of energy in the space surrounding the magnet, known as the magnetic field; this energy in the magnetic field is not expended, exerts no influence and does no work unless the field is disturbed." It is a well known fact that a magnet is a body which has the property of attracting iron, steel, and certain other metals, and when a bar of steel is rubbed by a magnet, it acquires magnetic properties and becomes endowed with polarity; so when suspended in the air, one end points to the north and is called the north pole, the other end to the south is called the south pole, now this bar becomes an artificial magnet and has the property of attracting unlike poles and repelling those of like polarity; near its center is a point where no magnetic force is visible, but cut into two or more pieces, each piece at once displays polarity. Steel is much harder to magnetise than iron and retains its magnetism longer, the softer the iron, the more easily it is magnetized, and consequently the more easily demagnetized; all magnets possess what is known as magnetic force or flux lines, which are assumed to pass out of

the north pole, describe a circuit in a longitudinal direction to the magnet and pass in again at the south pole. These lines are more numerous and hence the magnetic influence more intense in close proximity to the poles, and if undisturbed they exert no energy except attraction and repulsion, but introduce a coil of wire within the magnetic field and at once by intersecting the flux lines, energy is developed and a current of electricity is induced, though only while the coil is in motion; then again when the coil is removed from the magnetic field, a current in the opposite direction is induced. This fact can be plainly demonstrated by placing a milliampere meter in the circuit and the needle will be seen to deviate in the opposite direction.

It has been proven also that if a bundle of soft iron wire be wrapped and insulated, and a coil of insulated wire be wound around this core, then a current of electricity passed through this coil, which is called the primary, at once the core becomes magnetised, is endowed with polarity and is, therefore, an electro-magnet.

It was upon this principle that the ordinary induction apparatus, or faradic coil was constructed. By referring to an apparatus of this kind, you will see that a vibrating spring rests upon the point of a screw which projects from an upright post, so when the electric current is established through this point of contact, it circulates in the primary coil surrounding the core (or bundle of soft iron wire) and magnetises it; this magnet so formed, at once establishes a current in the opposite direction to the one which magnetises it, it also attracts the spring at the same time and breaks the current at the contact point, the current thus arrested causes the core at once to lose its magnetism, the spring is released and falls back upon the contact point when the current is re-established. This automatic make and break of the current alternately magnetises and demagnetises the core. Now if this electromagnet be introduced into the centre of a secondary coil, it will act the same as a permanent magnet and induce a current in this secondary coil, and the instant it becomes demagnetised another current is induced in the opposite direction. Therefore this apparatus gives us an interrupted induced current, because the current in the secondary coil is induced entirely by virtue of this coil intersecting the flux lines of this core or electro-magnet.

These two currents thus established are of unequal strength

and volume however; the make current, or the one induced when the core becomes magnetized, is very much feebler than the break current (or the one induced when the core becomes demagnetized), the reason for which we will explain: When the core becomes magnetized a current is induced in the primary coil which immediately surrounds it, and there is another current induced in this coil in the opposite direction when the core becomes demagnetized. Now the current induced in this coil when the core becomes magnetised is in the *opposite direction* to the current flowing through it which produces magnetism in the core, hence it acts as a counter pressure and cuts down the force of the make current, or the one produced when contact is made at the vibrator, further a great part of the force of this make current is expended in magnetising the core. But the current induced in the primary coil when contact is broken (or the break current) is in the *same direction* as the current which magnetises the core and has no such counteracting force to oppose it, therefore it is readily seen that the two currents are of unequal strength, this difference, however, is not appreciable through the low resistance of the gavanometer, but when such resistance as the human body is placed in the current, it is at once manifest and appreciable, therefore, since we can only consider that current which produces an appreciable influence, it must be recognized as a current of one direction, and is necessarily endowed with polarity, since it is always in the same direction. It is estimated that the difference in the force of these two currents (the make and break as they are termed) is as 1 to 13; that is, the break current when the core is rendered magnetic, is 13 times stronger than the make current, or that established when contact is made.

The strength of the current in the secondary coil is in proportion to the number of lines of wire which is exposed to the magnetic influence of the core ; in other words, if the secondary coil only partially covers the primary, the current induced is necessarily feebler than when it completely covers it. In this way we have a means of varying its strength.

We come now to consider the physical qualities of this current, viz., pressure and volume, and the therapeutical properties, mainly stimulation and sedation.

The stimulating property is in proportion to the volume which

may be varied by changing the length and size of the wire in the secondary coil. If this coil is composed of a very long fine wire, there are, of course, a greater number of turns exposed to the magnetic influence of the core, which produces a current of high electro-motive force or pressure, therefore the pressure depends partly upon the number of lines of magnetic force intersected and partly upon the number of cells producing the primary current, but when this long fine wire is used, the resistance in the coil is greatly increased, therefore the amperage or volume of the resulting current is greatly reduced : so on the contrary, if the coil is composed of a short coarse wire, fewer lines of magnetic force are intersected, therefore the resistance is greatly diminished and there results a current of lower electro-motive force or pressure and greater amperage or volume.

Now in dealing with the human structures, where different bodies possess variable resistances, it is exceedingly important to select a suitable pressure to overcome the encountered resistance and produce a satisfactory and beneficial result.

Further, since these two properties of stimulation and sedation depend upon the qualities of pressure and volume, it is all important to possess an apparatus capable of producing these varieties as desired.

The cheap forms of faradic apparatus are comparatively worthless, because they are not constructed so as to make these variations possible.

One of the most important effects produced by this current is stimulation of increased tissue changes, that is increased absorption of oxygen and a corresponding increased elimination of carbonic acid, therefore increased nutrition. There is also produced a stimulating effect upon the capilliaries and lymphatics, and it is to this power that is attributed its ability to promote the rapid absorption of inflammatory exudates.

Sedation, perhaps the most important effect of these induced currents, is promptly brought about by the current of the long fine wire coil, and with it comes an anesthesia of the terminal nerve filaments, an obtunding of the nervous centres and relief from pain, while stimulation is produced by the coarse short wire coil; therefore a thorough understanding of the subject, and a knowledge of the different qualities and effects of these currents, is necessary for the attainment of satisfactory results, and unless

these points are observed and the current properly employed, success cannot be expected. Hence with a proper appreciation of its virtues and uses, we have in electricity an agent for the cure of disease, which is destined in the future to take a prominent place in the armamentarium of many educated and scientific physicians in the land.

Aconite Poisoning—The Diagnosis and Treatment, With Report of a Case.

By E. A. MOYE, M. D., of Greenville.

Poisoning by aconite is of such rare occurrence, that I hope the following case which came under my care will prove interesting to this society. In reporting the case I shall not review the literature on the subject or give the symptoms enumerated in the various text books of therapeutics, but I shall call attention to two symptoms that I have not found reported, which in my case were very important.

The history of the case is as follows :

W. A. B., white male, age 22, weight 124 lbs.

About 6 o'clock in the afternoon he visited a drug store and asked the clerk to give him a dose of "Sun Cholera Cure" to relieve a pain in his stomach. The dose was not measured accurately, but he tells me that it was a teaspoonful or more. Immediately after swallowing the dose, his lips, tongue and throat began to tingle, and he remarked to the clerk that it did not taste like the medicine he had been taking. He went from drug store to supper, but could not eat on account of a feeling of uneasiness. Soon the muscles of his back and calf of legs felt as if pins were sticking in them, and this soon extended over whole body. He went back to drug store and told the druggist that he had taken the wrong medicine and if something was not done for him it would kill him. Both the druggist and his clerk, who had prepared the medicine for him, insisted that he had taken the medicine called for, and his symptoms were due to the morphine con-

tained in the "Sun Cholera Cure." He was so much alarmed, however, that I was called to see him.

I found him very much excited, walking the floor and declaring he was going to die. He could not stand without support and could not walk without assistance. His face was pale and drawn, eyes sunken, pulse fairly good, full and regular. At the time I could get absolutely no history. The clerk insisted that he had taken "Sun Cholera Cure" and brought me the bottle to examine. I suspected Aconite poisoning from the burning and tingling of the mucous membranes with which the drug had come in contact. As my office was but a short distance away I had the patient carried there, and at once emptied his stomach by means of the stomach pump and washed it out thoroughly with hot water. Before doing this, however, I had the patient placed on a couch with the feet elevated. Immediately after his stomach was emptied the condition of the patient became much more serious. His pulse was imperceptible at the wrists, and the action of his heart was very weak. He now complained of severe pain in cardiac region—said he felt as if his heart was in a vise. The numbness had extended over whole body. Consciousness was not lost.

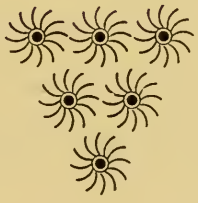
The treatment was that laid down in all text books. Nitroglycerine, strychnine and tincture digitalis were administered subcutaneously. Counter-irritation was applied over heart. The patient was kept in absolute rest, with head lowered. The arms, hands, legs and feet were rubbed vigorously. In two hours I considered the patient out of danger, but remained with him several hours and gave hypodermic of morphine to produce sleep.

The following morning he felt much better, but was still weak and his feet and legs were painful. The soreness of his feet and legs I attribute to the force used by my zealous, but untrained assistants. He was able to resume his duties as a clerk in two days, and since that time has felt no bad effects from his dangerous experience.

The tingling and burning of the mucous membranes with which it comes in contact, are very important diagnostic symptoms of poisoning by aconite, and it was upon these that I based my diagnosis. The diagnosis was verified the following day when I visited the drug store and found the bottle containing tincture of

aconite was similar to the bottle containing "Sun Cholera Cure" and just below it.

The failure of the heart following the emptying of the stomach was something I was not prepared for and was very alarming. I do not find this sympton enumerated among the symptoms of aconite poisoning. The cardiac pain was very severe and gave the patient more anxiety than any of the other symptoms. This pain was relieved by the use of stimulants and counter-irritation over heart, and was in my opinion due to the depressing action of the drug on the heart muscle.



SPECIAL REPORTS.

Report of the Committee on the Pittman Prize.

THE committee on the Pittman Prize reported that two papers were submitted for their consideration, but that neither were, in their opinion, of sufficient merit to win the prize of $100.

As a part of the report, the committee turned over to the Treasurer the $100 offered, which had been placed in their hands for disposition.

GEO. W. LONG,
J. P. MUNROE,
R. H. WHITEHEAD,
A. A. KENT.

Report of the Committee on Nominations.

For Orator, T. S. McMullan, Hertford; Essayist, R. H. Whitehead, Chapel Hill; Leader of Debate, J. M. Parrott, Kinston.

Board of Censors: G. G. Thomas, Wilmington, L. J. Picot, Littleton, R. H. Speight, Wrendale, M. H. Fletcher, Asheville; C. M. Poole, Craven.

Committee on Publication: Drs. R. J. Brevard, G. W. Pressly, D. O'Donoghue, A. J. Crowell, Charlotte.

Committee on Legislation: Drs. R. H. Lewis, Raleigh; G. T. Sikes, Grissom; N. P. Boddie, Durham; L. J. Picot, Littleton; H. A. Royster, Raleigh.

Obituary Committee: Drs. K. P. Battle, Raleigh; P. L. Murphy, Morganton; G. W. Purefoy, Asheville.

Delegates to American Medical Association: Drs. A. G. Carr, Durham; H. B. Weaver, Asheville; S. D. Booth, Oxford; N. B. Herring, Wilson; C. P. Ambler, Asheville; G. L. Kirby, Ral-

eigh; M. Olivia Nelon-Denison, Asheville; J. P. Munroe, Davidson; W. W. McKenzie, Salisbury.

Delegates to South Carolina Medical Society: Drs. J. A. Burroughs, Asheville; Annie Alexander, Charlotte; F. H. Russell, Wilmington; W. H. Wakefield, Charlotte.

Delegates to Virgina Medical Society: Drs. Anna M. Gove, Greensboro; H. W. Lewis, Alexander; C. L. Minor, Asheville; W. H. Ward, Plymouth; B. L. Long, Hamilton.

Delegates to American Public Health Association: Drs. A. A. Kent, Lenoir; Carl von Ruck, Asheville; J. W. Long, Salisbury; J. A. Reagan, Weaverville; S. H. Lyle, Franklin.

H. B. WEAVER (Chair'n),
H. H. HARRIS,
J. M. BAKER,
B. F. HALSEY,
GEO. L. KIRBY,
Committee.

Report of the Finance Committee.

We, your Finance Committee, make the following report after examining the books and vouchers of the Secretary and Treasurer:

To balance on hand June 5, '98		$561 64
May 5.	To amount collected from members	42 00
Aug. 1.	To amount collected from members	34 00
1899.		
April 25.	To amount collected from members	86 00
May 29.	To amount collected from members	29 00
		$752 64

EXPENSES.

1898.		
May 5.	Paid M. P. Perry, Treasurer	$100 00
May 30.	Paid Stenographer	25 00
May 2.	Paid Observer Printing House	3 75
May 4.	Paid R. D. Jewett	305 86
July 2.	Paid News and Observer	2 80
July 8.	Paid Stationery	3 00
Sept. 30.	Paid Postage	4 16
1899.		
May 29.	Paid Postage	36
		$444 93
Balance on hand May 31, 1899		$307 71

We recommend the usual assessment of $2 per capita. That the salary of the Secretary be $100, and that of the Treasurer $75. We also again urgently recommend that the Treasurer notify each delinquent member of his indebtedness, and request an early settlement of the same. We would also recommend that the stenographer be employed at a maximum salary of $25. We recommend that the proposed resolution of Dr. J. P. Munroe be considered in connection with this report.

Dr. J. P. Munroe withdrew his resolution heretofore introduced, which reads as follows :

Resolved, That Article III, Section 2, be amended by adding to it the following : But any licentiate who shall apply for membership in this society at the current meetings during which he has been licensed by the Board of Examiners, and be recommended by the Committee on Credentials, shall be admitted without paying the initiation fee of $5.

A. G. CARR (Chairman),
R. H. SPEIGHT,
T. S. MCMULLAN,
Committee.

Report of the Committee on Credentials.

WM. J. MCANALLY	High Point.
T. W. LONG	Catawba.
H M. S. CASON	Edenton.
W. L. HILLIARD	Asheville.
JOHN MCCAMPBELL	Morganton.
JOHN B. WRIGHT	Coharie.
PAUL PACQUIN	Asheville.
S. H. CROCKER	Moyeton.
G. J. GOUGER	Tulin.
MARY O. NELON-DENISON	Asheville.
NORMAN C. HUNTER	Enfield.
JOHN D. MACRAE	Fayetteville.
CHAS. L. SCOTT	Mebane.
WALTER C. LAUDERDALE	Asheville.
D. G. MCKETHAN	Fayetteville.
G. M. VAN POOLE	Craven.
J. F. PEAVY	Asheville.
THOMAS STRINGFIELD	Waynesville.
J. WARREN ACHORN	Boston, Mass

W. E. MILLER.....Burlington.
HARRIS R. MOORE.....Burlington.
A. M. WHISNANT.....Caroline.
R. HICKS.....Henrietta.
W. H. SMITH.....Olive Branch.
W. O. NISBET.....Waxhaw.
J. H. RUSSELL.....Canton.
WM. FOUNTAIN.....Leggett.
T. L. BROOKS.....Black Creek.
R. T. S. STEELE.....Rockingham.
L. H. LOVE.....Wilmington.
J. P. WHITEHEAD.....Rocky Mount.
S. H. LYLE.....Franklin.
CHAS. VAN BERGEN.....Asheville.
J. H. WOODCOCK.....Asheville.
J. B. MATTHEWS.....Pittsboro.
J. F. ABEL.....Canton.
CHAS. S. JORDAN.....Asheville.
CHAS. L. PEARSON.....Asheville.
A. M. BENNETT.....Bryson City.
EARLE GRADY.....Tryon.
JAS. SAWYER.....Asheville.
H. C. MENZIES.....Hickory.
L. B. McBRAYER.....Asheville.
JOHN W. OSBORNE.....Asheville.
D. E. SEVIER.....Asheville.
J. T. SEVIER.....Asheville.
E. R. MORRIS.....Asheville.
A. S. PENDLETON.....Warrenton.
S. L. RUSSELL.....Spillman.
W. C. DANIEL.....Adoniram.
C. A. ANDERSON.....Burlington.
J. A. MORRIS.....Wilton.
THOS. P. CHEESBOROUGH.....Asheville.
B. RAY BROWNING.....Littleton.
J. E. MOORE.....Sandy Mush.
J. E. SMITHWICK.....Jamesville.
R. L. ALLEN.....Waynesville.
F. G. WILSON.....Gastonia.
B. R. GRAHAM.....Wallace.
G. P. REID.....Old Fort.
J. M. NEWBERN.....Powell's Point.
H. McK. TUCKER.....Raleigh.
D. A. GARRISON.....Bessemer City.
R. F. YARBOROUGH.....Louisburg.
THOS. W. DAVIS.....Louisburg.

H. M. FLETCHER,
H. A. ROYSTER,
C. M. POOLE,
Committee.

Report of the Committee on the President's Address.

Your committee, to whom was committed the admirable message of the president for report, beg leave to say :

That careful study of the thoughtful suggestions of our chief executive officer leads us to offer you the following resume and endorsement.

We heartily concur with the opinion that it is unwise to encourage the formation of Medical Societies in North Carolina that will directly or indirectly detract from the general Medical Association. Here is the body which has been the source and soul of the advance movements that have made the record of which we all are so justly proud. It cannot be too often told that this Society was the pioneer of higher medical education. It was the wisdom of our grand Society that shaped out the course that has brought us to the safe haven in which we are resting. There are opportunities in its ranks for the exercise of the best intellects, and the satisfaction of the most vaulting ambitions. The elders of our members stand by the Society. Knowing its worth, and happy in the realization of the hopes of many years, the conservative members find in it the chance to be taught the newer thoughts and advancing ideas, and to the restless energy and watchful and ready trained intellects of the younger men, it is a field forever ready for the work, and to them it has always yielded an abundant harvest. Let us resolve now and forever to cherish to the utmost of our poweers the best interests of this organization, departing from the ways of those whose hopes of preferment or desires for the betterment of business ventures or personal ambitions would draw us from this untiring mother with new, untried and possibly useless associations, originating in localities outside of North Carolina, and having as a cause of their being the upbuilding of one or other rival interests to which our people are to be dragged in as contributors. There is no good ground, we take it, for the two new societies in North Carolina, and we heartily agree with the President in his criticism and his appeals to the members of our own body to stay at home and labor zealously for the greatest good of the institution that has made the North Carolina doctor, the licentiate of the Board of Examiners, the peer and leader in the medical profession.

Regarding the recommendation of an organized insurance to be conducted within our ranks, we are heartily in favor of some such idea, if it can be materialized, but it needs most careful study and preparation, including the setting forth of plans, the scale of rates chargeable and the basis of assessment. We recommend that a committee of three, to be named by the President, himself to be one of it and chairman, be appointed to take this matter under advisement and report to the next annual session of the Society.

We regret that under the laws of North Carolina, regulating the practice of medicine, no reciprocity in the exchange of licenses can be considered. No doubt the time is at hand when some change necessary to enable one Board of Examiners to accept the licenses of other States having the same standard as our own, may be considered, and the matter could be wisely referred to the Committee on Legislation.

If the Society deems it wise it will add interest to the meetings to have a special report on Pediatrics, and the organization of the new section will be timely, and the suggestion of the President for it was a most thoughtful one. To those of our members engaged in the railway surgical service, a section devoted to that particular branch would certainly bring to the annual meetings much material which would interest and instruct not only those so especially engaged, but the whole Society as well.

In conclusion, we beg leave to congratulate the President upon his message, and the Society upon the selection of so able a leader for this year.

C. J. O'HAGAN,
R. H. LEWIS,
GEO. GILLET THOMAS.

Report of the Obituary Committee.

At the meeting of the Society in Raleigh, in 1893, the death of Dr. S. S. Satchwell was reported, and a number of eulogistic speeches made by the older members who had been associated with him for years. So highly was he esteemed by the Society, that his case was referred to a special committee to report suitable resolutions in regard to his useful life, his love for the

Society, and his great interest in the health of the State. Owing to sickness, and the death of one of the committee, the report has been delayed, but is now submitted as follows:

IN MEMORIAM.

SOLOMON SAMPSON SATCHWELL, A. M., M. D.

Dr. Satchwell was born in Beaufort County, N. C., October 26th, 1821, and died at his home, Burgaw, Pender County, Oct. 9th, 1892, in the seventy-first (71) year of his age.

He was educated at Wake Forest College, studied medicine with Dr. John Norcom, of Washington, N. C., and at the medical department of the University of New York, receiving his degree of Doctor of Medicine from that Institution in the Spring of 1850. He remained in New York for eighteen months, studying medicine after receiving his degree.

He then returned to his home in Beaufort County, N. C., near Washington, and began the practice of his profession, and remained there until 1854, when he moved to Long Creek, in Pender County, N. C. He practiced his profession in this county until 1860, when he went to Paris, France, to pursue the study of medicine. He was one among the first members of this Society, which he loved and served faithfully up to his death. It afforded him pleasure to attend the meetings of the Society and he rarely came to one empty handed. He attended the meetings of the Society when it was possible for him to do so.

The Society appreciated his interest in and devotion to its welfare and conferred upon him almost every honor within its gift; electing him Secretary in 1854, 1855 and 1856, co-editor of the *North Carolina Medical Journal* with Dr. Chas. E. Johnson in 1859, when the *Journal* was published by the Society.

He was elected a member of the second Board of Medical Examiners for six years, from 1866 to 1872.

He was elected President of the Society and presided at the meeting in 1868.

He was the first one to make a move for the establishment of the Board of Health for this State.

Single handed and almost entirely alone, he worked for and succeeded in securing the establishment of the Board of Health, by the Legislature. He was elected the first president of the

Board, and to him the profession of medicine and the public are indebted for whatever good the Board has accomplished.

Dr. Satchwell returned home from Paris in the Spring of 1861, upon the beginning of the great war, and entered the Confederate Army as the Surgeon of the 25th North Carolina Regiment, then Col. Clingman's regiment. He served with Clingman's command until the Spring of 1863, when he was assigned to duty as Surgeon in charge of the general hospital at Wilson, N. C., afterwards known as General Hospital No. 1, in the General Hospital District of North Carolina. He continued in the faithful discharge of all his duties here until the end of the war in April, 1865.

The conduct and management of the hospital reflected great credit and honor upon him and all the assistants under his charge. This hospital was reported to the Surgeon General of the Confederate States in the spring of 1865 as one among the best general hospitals of the Confederate States, by Surgeon Chopin, of New Orleans, who was the Medical Inspector on General Beauregard's staff, and who said that he had inspected the general hospitals in every district of the Confederate States.

At the end of the war, in April 1865, he returned to his home at Burgaw, in Pender County, and devoted himself to the practice of his profession and the welfare of his fellow citizens, until his death, October 9th, 1892.

He died of typhoid fever, while in attendance on several patients with that disease, whom he visited while so sick himself that he had to be lifted into and taken out of his buggy when he called upon them.

He was true, devoted and faithful to every duty, through a long and useful life, even unto death.

He served his patients, his State and the Confederate States, truly, loyally and devotedly.

Resolved, that in the death of Dr. Satchwell, this Society has lost one of its oldest and most devoted members, full of years and the honors of this Society, and expresses its appreciation of his life, character and reputation, and deplores its loss caused by his death.

Resolved, that one or more pages in the records be devoted to the memory of Dr. Satchwell, and that the Society extends its sympathy to his family in their great loss and in their bereavement at his death.

Resolved, that the Secretary be instructed to send a copy of this memoir and resolutions to the family of Dr. Satchwell.

CHARLES EUGENE HILLIARD, M. D.

Dr. Charles Eugene Hilliard was born in Asheville, August the 24th, 1864, was educated up to the times, in Asheville, graduated from Jefferson Medical College, Philadelphia, in the Class of '88, died December 19th, 1898.

It is thought by many that a young man has a more difficult chance for success in his profession at home where he has mixed with the men of his age than among strangers, but while this may be the case with some, it was not the case with Dr. Hilliard. He at once entered into a fine practice, and retained it with increasing popnlarity as a man and a physician. But few men of his age stood higher in the profession among the physicians and the people than did Dr. Hilliard. His father was one of the leading physicians of this section, and his son was reflecting honors on the name when he was suddenly called to leave all that were dear to him. He had been visiting patients, came home and was eating his supper when he was suddenly taken sick and died in a few minutes. He was loved and honored by all who knew him.

DR. BROWN.

"Whom the gods love die young." Dr. Brown was born in Pitt County, near Greenville. He was descended from one of the oldest and most respected families in the county. His father gave him a splendid education, both academic and collegiate. At an early age he selected medicine as his vocation in life, and after two years' pupilage he entered Bellevue Medical College, from which he graduated with distinction, after three years' study. He became partner of his preceptor, with whom he practiced for twelve years in the discharge of his professional duties. He was distinguished by zeal and industry, and speedily secured the confidence and respect of his patients. He had decided talent for surgery, and if his life had been spared he would have been distinguished in his favorite branch. He died universally loved and respected.

GEORGE A. FOOTE, M. D.

Dr. George A. Foote was born in Warrenton, N. C., studied medicine with Dr. O. F. Manson, settled in Warrenton and

practiced successfully until the breaking out of the civil war, when he joined the Confederate army and served throughout the entire war, distinguishing himself especially in the assault and capture of Ft. Fisher, where he displayed conspicuous gallantry in the discharge of his professional duties under the most terrific fire known in the annals of war. He was an active and devoted member of the Medical Society of the State, which rewarded him by the bestowal of the highest honors within its gift. As a near and dear physician he won the honor and respect of all with whom he was brought in contact. After a lingering illness he died, regretted and mourned, not only by the community in which he lived and worked so faithfully and long, but also by this Society.

Resolved, that a copy of this report be spread upon our minutes and that the Secretary forward a copy to the family.

GEO. W. LONG (Ch'man),
J. A. REAGAN,
C. J. O'HAGAN.

Report of the Board of Medical Examiners.

DR. THOS. E. ANDERSON, of Statesville, Secretary.

Mr. President and Gentlemen of the North Carolina Medical Society:

The Board of Medical Examiners, instituted by yourselves, having completed its work, desires through me, its Secretary, to submit the following report:

The Board began its work Thursday afternoon, the 25th inst., and has been, with the exception of Sunday intervening, in almost continuous session, having finished this morning at 6:30 after an all-night session. Our roll shows that 112 names have been registered, the number of applicants being 112. These applicants represent 40 medical colleges or schools. The list shows that the University College of Medicine of Richmond, Va., leads all the rest in numbers, there being from this Institution 19 applicants, only one of which is an undergraduate. The next in point of numbers is the University of Maryland, it furnishing

12 applicants, one of whom is an undergraduate. The North Carolina Medical College stands next in order and presents 10 applicants for license, six of whom are non-graduates. The University of Nashville, Medical College of Virginia and Vanderbilt University each furnish five, and out of the 15 three are non-graduates. The Kentucky School of Medicine furnishes four, three of whom are non-graduates. The Ohio Medical College, Baltimore Medical, Jefferson Medical College and Long Island College Hospital, all furnish three each, and out of the 12 thus furnished, one only is an undergraduate. The Medical Department of the University furnishes two first-course men. Atlanta College of Physicians and Surgeons, Leonard Medical College, Chattanooga Medical College, Baltimore University, Medico-Chirurgical of Philadelphia, Pa., Medical College, of South Carolina, Tulane University of Louisiana, Physicians and Surgeons, Baltimore, Bellevue, and University of New York, each furnish two, making 18, all graduates in medicine. University of Tennessee, Missouri Medical, Georgetown University, University of Pennsylvania, Chicago School of Homeopathy, Medical College of Alabama, Columbia University of Washington, D. C., University of Louisville, Ky., Medical Department National University of Georgetown, D. C., University of Leipsic, Germany, St. Louis Medical College, Physicians and Surgeons of New York, Alabama Medical College, University of Virginia, Southern Medical College of Atlanta, Ga., University of Georgia, the Laura Memorial Medical College of Cincinnati, Ohio, and Medical College of Maine, all furnish one each, all of whom are full graduates except one, making a total of 112. Of this number, two, mindful that coming events cast their shadows before, withdrew. Of the 112 applying, 95 are graduates, 17 are non-graduates.

After a careful, painstaking, if not painful and deeply conscientious consideration of the papers presented by this large and unprecedented number, we have, after careful consideration and revision, placed in the hands of those whose names appear below, our license to practice medicine in the State, with all the immunities, privileges, etc., appertaining.

Among the applicants for license before the State Board of Medical Examiners this year, the highest grade was made by L. H. Love, of Wilmington, with 96 per cent. W. E. Miller, of Burlington, came next with a percentage of 94 5-7 ; S. W. Schell,

of Lenoir, 92 5-7; and Chauncey Rakestraw, of Charlotte, a near fourth with 92. Thirteen others made over 90 per cent.

The following is the list of the successful applicants :

William P. Isley, Burlington; J. M. Newbern, Powell's Point; Charles L. Scott, Mebane; W. C. Lauderdale, Asheville; J. D. MacRae, Fayetteville, J. F. Peavy, Asheville; J. S. Wise, Chester, S. C.; J. W. Slate, Quaker; Paul Paquin, Asheville; G. W. Hays, Lancaster, Ky.; J. P. Whitehead, Rocky Mount; B. W. Fassett, Cross Roads Church; A. W. Calloway, Asheville; J. D. Heathman, Woodleaf; D. G. McKethan, Fayetteville; N. C. Hunter, Enfield; W. G. Leak, Francisco; T. W. Davis, Louisburg; T. W. Shore, Booneville; R. F. Yarborough, Louisburg; H. S. Monk, Newton Grove; W. W. Duson, Asheville; W. E. Miller, Burlington; C. C. Joyner, Greenville; H. G. Heilig, Salisbury; D. W. Griffin, Reppetoe; J. S. Slate, Mizpah; A. R. Winston, Franklin; O. S. Smith, Waycross; J. H. Peeler, Faith; J. E. Nobles, Greenville; H. H. Boss, Rocky Mount; H. R. Moore, Burlington; W. M. White, Statesville; C. W. Banner, Mt. Airy; Geo. H. Ross, Oakdale; R. G. Rozier, Rozier; R. T. S. Steele, Rockingham; H. M. S. Cason, Edenton; T. C. Quickel, Lincolnton; R. D. Holt, Smithfield, F. D. Drewry, Garysburg; H. C. Houston, Walkup, F. A. Ward, Gliden, T. B. Tyson, Covington; D. A. Boyd, Plott; G. Cardwell, Reidsville, R. M. Robertson, Pittsburg; I. W. Lann; Siler City; L. A. Walker, Stone Creek, R. E. Hollingsworth, Mt. Airy, E. J. Widby, Lenoir; J. B. Wright, Coharie; S. W. Schell, Lenoir; Wm. Fountain, Tarboro; W. O. Nisbet, Waxhaw; J. M. Covington, Rockingham; G. M. Van Poole, Craven; C. S. Maxwell, Mt. Olive; J. T. Smith, Westfield; Edmond Gladmon, Southern Pines; James A. Smith, Raleigh; J. R. Thompson, Colly; T. L. Brooks, Black Creek; J. C. Hall, Star; B. L. Ray, Bangor; Geo. H. Kirby, Raleigh; J. P. Wimberly, Rocky Mount; Calvin M. Case, Asheville; Robert L. Felts, Charlotte; Chauncey Rakestraw, Charlotte; W. D. Price, Charlotte; H. McKee Tucker, Raleigh; T. L. Fox, Franklinville; D. L. Fox, Worthville; L. H. Love, Wilmington; T. M. Copple, Lexington; W. J. Meadows, McAdenville, W. H. Smith, Marshville; A. B. Drafts, Lexington; W. T. Parrott, Kinston; I. H. Manning, Wilmington; Ida M. Wilson, Charlotte; S. H. von Ruck, Asheville; Louise Anderson

Merrimon, Asheville; L. Warren Achorn, Boston; T. O. Joyner, Seaboard.

Dr. Anderson further said: "The Board exposed one of the most infamous attempts to secure a license that has come to our knowledge, wherein a young native of this State went to Baltimore and secured a young man from one of the institutions, which place he had secured by competitive examination, brought him here, registered in the name of this North Carolina young man, and was regularly proceeding to take our examination, when a little bit of data in my hands enabled me to get after it, and after questioning him and looking after him pretty sharply, he found that he was detected and disclosed the whole scheme. He said that he was prompted purely by friendship to this young fellow, who had been a classmate of his, and who felt very certain he could not stand the examination, and he came here representing that fellow, but unfortunately he had not studied his part well. He knew the town he was from, but did not know his county. He said he had been out of the State four or five years, was the reason he forgot his county. I asked him about some other citizens of that county, and he knew nothing whatever, and he saw he was detected, and he told the whole thing and left on the first train. A very infamous thing indeed. He said he would never do anything of that kind again.

I would like to give notice that we will immediately issue licenses to the successful gentlemen, and that we have some very nice blanks on parchment which will cost $1.00. Anybody wishing them will please notify me.

Report of the Committee on Legislation.

Your committee respectfully beg leave to report:

In 1849 the State Medical Society was organized by a handful of our leading physicians. Ten years afterwards, just forty years ago, it was incorporated by the General Assembly, and in the same bill were embodied provisions for regulating the practice of medicine in this State, requiring a license from a Board of Examiners to be elected by the Society. The penalty was inability to collect fees at law. According to our recollection,

this was, with the exception of a meagre law enacted by the Legislature of New York early in the century, but which fell almost immediately into "innocuous desuetude," and therefore should not count—the first attempt made in the United States to regulate the practice of medicine. For many years ours was the only law of the kind in the country, and slow old North Carolina was the leader in this important movement.

In 1885, chiefly through the efforts of the late deeply lamented Dr. Thos. F. Wood, of Wilmington, the law was amended by making it a misdemeanor, punishable by fine and imprisonment, to practice without license.

In 1889 the registration feature was added—the act allowing all in practice at the time to register whether licensed or not, but closing the doors finally on January 1, 1892, to all except those holding a license from the Board of Medical Examiners.

While the Acts of 1885 and 1889 greatly strengthened the law, two serious defects remained to be cured. One was the right of any one, whether properly educated in medicine or not, to apply for license, and the other was the practical ability of the Board, owing to the fact that its examinations were necessarily theoretical, to ascertain whether the applicant had received the necessary clinical instruction. To cure these defect your Committee on Legislation, believing that public opinion had grown up to this point, and that the time was ripe for making the effort, drew a bill embodying these amendments and secured its enactment by the General Assembly of 1899. It received a unanimously favorable report from the Judiciary Committees of both the Senate and House, and passed the Senate unanimously, but met with active opposition in the House, much to our surprise, as no one outside the Legislature, or in it, so far as known, was against it. The argument against it was directed chiefly to the provision requiring a diploma from a college, requiring an attendance of three years, the speakers holding that it would debar some ambitious young men of limited means from entering the profession, the insinuation being made that the bill was a scheme on the part of the physicians now in practice to form a "doctor's trust," and reduce competition. We know that this idea did not enter the minds of your committee, and that we were actuated by only two motives —the still further elevation of our profession, and the more certain protection of the people against incompetency on the part of their

medical advisers. Instead of lessening competition, the effect of the amendment will be to increase it by insuring the more thorough preparation of the new men coming in from year to year, while it will not sensibly diminish the number. There is no danger of a failure in the crop of doctors. Admitting that the requirement of a diploma from a respectable college—no college requiring less than three years' attendance can now be called respectable—will prevent a few young men from following the profession of medicine instead of some other calling equally honorable and frequently more lucrative, it should not even be so much as named in comparison with the greater protection to the health and lives of the people of the whole State. We feel that the acknowledgments of the Society and of the people of the State are due the gentlemen of the Legislature who supported the bill by speech and vote. Among so many friends we would not make any invidious distinctions, but we feel that it would be proper to mention particularly the Hon. M. H. Justice, of Rutherford, who introduced and championed the bill in the Senate, securing its passage without a dissenting vote; the Hon. B. E. Reeves, M. D., the Representative from Ashe, who led the fight for it in the House, and the Hon. H. G. Connor, of Wilson, Speaker of the House, who becoming concerned for the passage of the bill, left the Speaker's chair and advocated it on the floor in a speech of great weight, in the course of which he took occasion to pay an eloquent tribute to the physician—the country doctor in particular.

RICHARD H. LEWIS, Chairman,
For the Committee.

THE NEW LAW.

AN ACT TO AMEND CHAPTER THIRTY-FOUR OF THE CODE AND CHAPTER ONE HUNDRED AND EIGHTY-ONE OF THE LAWS OF 1889.

The General Assembly of North Carolina do enact:

SECTION 1. That chapter thirty-four of The Code be amended by inserting after the word "applicants" in line two of section three thousand one hundred and twenty-four, the following words: "who shall exhibit a diploma, or furnish satisfactory proof of graduation, from a medical college in good standing requiring an attendance of not less than three years and supplying such facilities for clinical instruction as shall meet the approval of the said Board;" and by adding immediately after said section three thousand one hundred and twenty-four the following words: "*Provided*, that the requirement of three years' attendance shall not apply to those graduating prior to January 1st, 1900. *Provided, further*, that license or other satisfactory evidence of standing as a legal practitioner in another State shall be accepted in lieu of a diploma, and entitle to examination."

SEC. 2. That section three thousand one hundred and twenty-five of The Code be amended by inserting after the word "applicant" in line three, the following words: "who shall comply with the requirements as to graduation prescribed in section three thousand one hundred and twenty-four as amended."

SEC. 3. That section three thousand one hundred and twenty-seven of The Code be amended by adding immediately after said section the following words: *Provided*, That the said Board may, in its discretion, meet not more than one week before the said society, but always in the same place; and that one additional meeting in each year may be held at some suitable point in the State, if deemed advisable."

SEC. 4. That chapter one hundred and eighty-one of the

Laws of 1889 be amended by striking out all of section three from the word "words" in line four down to the word "any" in line nine, the word "likewise" in line eleven and the word "such" in line fourteen; by striking out in section four all from the word "or" in line three to the number "1885" in line six, inclusive, and the words "on oath" in line seven; and by striking out in section seven all after the word "act" in line three.

SEC. 5. That this act shall be in force from and after January first, 1900.

So that the law, as amended to date, reads as follows:

THE LAWS REGULATING THE PRACTICE OF MEDICINE IN NORTH CAROLINA.

[From the Code.]

SECTION 3121. MEDICAL SOCIETY OF THE STATE, A BODY POLITIC. PRIVATE LAWS, 1858-'59, C. 258, S. 1:

The Association of regularly graduated physicians, calling themselves "The State Medical Society," is hereby declared to be a body politic and corporate, to be known and distinguished by the name of "The Medical Society of the State of North Carolina."

SEC. 3122. WHO MAY PRACTICE. 1858-'9. C. 258, S. 2:

No person shall practice medicine or surgery, nor any of the branches thereof, nor in any case prescribe for the cure of diseases for fee or reward, unless he shall have been first licensed so to do in the manner hereinafter provided.

SEC. 3123. BOARD OF PHYSICIANS TO CONSIST OF SEVEN. 1858-'9, C. 258, SS. 3, 4:

In order to the proper regulation of the practice of medicine and surgery, there shall be established a Board of regularly graduated physicians, to be known by the title of "The Board of Medical Examiners of the State of North Carolina," which shall consist of seven regularly graduated physicians.

SEC. 3124. DUTY OF BOARD. 1858-'9, C. 258, S. 5:

It shall be the duty of the said Board to examine all applicants who shall exhibit a diploma, or furnish satisfactory proof of

graduation, from a medical college in good standing requiring an attendance of not less than three years and supplying such facilities for clinical instruction as shall meet the approval of the said Board, for license to practice medicine or surgery, or any of the branches thereof, on the following branches of medical science: Anatomy, Physiology, Surgery, Pathology, Medical Hygiene, Chemistry, Pharmacy, Materia Medica, Therapeutics, Obstetrics, and the Practice of Medicine, and if on such examination they be found competent, to grant to each applicant a license or diploma, authorizing him to practice medicine and surgery, or any of the branches thereof; *Provided*, five members of the Board shall constitute a quorum and four of those present shall be agreed as to the qualifications of the applicant: *Provided*, that the requirement of three years' attendance shall not apply to those graduating prior to January first, 1900. *Provided further*, that license or other satisfactory evidence of standing as a legal practitioner in another State shall be accepted in lieu of a diploma and entitle to examination.

SEC. 3125. TEMPORARY LICENSE. 1858-'9, c. 258, s. 7:

To prevent delay and inconvenience, two members of the Board of Medical Examiners may grant a temporary license to any applicant who shall comply with the requirements as to graduation prescribed in section three thousand one hundred and twenty-four as amended, and make report thereof to the next regular meeting of the Board: *Provided*, such temporary license shall not continue in force longer than the next regular meeting of the Board, and such temporary license shall in no case be granted after the applicant has been refused a license by the Board of Medical Examiners.

SEC. 3126. HOW APPOINTED. 1858-'9, c. 258, s. 9:

The Medical Society shall have power to appoint the Board of Medical Examiners.

SEC. 3127. WHERE AND WHEN TO ASSEMBLE. 1870-'1. c—, s. 11:

The Board of Medical Examiners shall assemble at the same time and place when and where the Medical Society assembles, which Society shall assemble at least once in every year at such time and place as the said Society, at its next preceding meeting,

shall have fixed; and the said Board shall remain in session from day to day until all applicants who may present themselves for examination within the first five days after its meeting shall have been examined and disposed: *Provided*, That the said Board may, at its discretion, meet not more than one week before the said Society, but always in the same place; and that one additional meeting in each year may be held at some suitable point in the State if deemed advisable.

SEC. 3128. OFFICERS, ETC. 1858-9, C. 258, S. 11.

The Board of Medical Examiners are authorized to elect all such officers and to frame all such by-laws as may be necessary, and in the event of any vacancy by death, resignation or otherwise, of any member of said Board, the Board, or a quorum thereof, is empowered to fill such vacancy.

SEC. 3129. THE BOARD OF EXAMINERS TO KEEP A RECORD. 1858-'59, C. 258, S. 12.

The Board of Examiners shall keep a regular record of its proceedings in a book kept for that purpose, which shall always be open for inspection, and shall cause to be entered on a book kept for the purpose, the name of each applicant licensed to practice medicine and surgery, and the time of granting the same, together with the names of the members of the Board present, and shall publish the names of those licensed in two of the newspapers published in the city of Raleigh, within thirty days after the granting of the same.

SEC. 3130. LICENSE. 1858-'59, C. 258, S. 13.

The Board shall have power to demand of every applicant thus licensed the sum of ten dollars before issuing a license or diploma, and the sum of five dollars for each temporary license to be paid to the Secretary of the Board.

SEC. 3131. THE BOARD; THEIR COMPENSATION. 1870-'71, C. —, S. 14.

The members of the said Board shall each receive as a compensation for their services four dollars per day during the time of their session, and in addition thereto their traveling expenses to and from their places of meeting by the most direct route from

their respective places of residence, to be paid by the Secretary of the Board out of any moneys in his hands, upon the certificate of the President of the Board of Medical Examiners.

SEC. 3132. PRACTICING WITHOUT LICENSE. 1858–'9, c. 258, s. 15; 1885, c. 117 AND 261.

Any person who shall practice medicine or surgery without having first applied for and obtained license from the said Board of Examiners, shall not be entitled to sue for or recover before any court any medical bill for services rendered in the practice of medicine or surgery or any of the branches thereof. And any person who shall begin the practice of medicine or surgery in this State for fee or reward, after the passage of this act [March 7th, 1885], without first having obtained license from said Board of Examiners, shall not only not be entitled to sue for or recover before any court any medical bill for services rendered in the practice of medicine or surgery, or any of the branches thereof, but shall also be guilty of a misdemeanor, and upon conviction thereof shall be fined not less than twenty-five dollars nor more than one hundred dollars, or imprisoned at the discretion of the court, for each and every offence : *Provided*, this act shall not be construed to apply to women who pursue the vocation of a midwife : *And provided further*, that this act shall not apply to any reputable physician or surgeon resident in a neighboring State or coming into this State for consultation with a registered physician resident therein. But this proviso shall not apply to physicians resident in a neighboring State regularly practicing in this State: *Provided*, that this section shall not apply to physicians who have a diploma from a regular medical college, and were practicing medicine or surgery in this State prior to the seventh day of March, one thousand eight hundred and eighty-five.

SEC. 3133. MAY RESCIND LICENSE. 1858-59, c. 258, s. 16.

The said Board shall have the power to rescind any license granted by them, when, upon satisfactory proof, it shall appear that any physician thus licensed has been guilty of grossly immoral conduct.

SEC. 3134. SECRETARY. 1858-59, c. 258, s. 17.

The Secretary of the Board of Medical Examiners shall give bond, with good security, to the President of the Board, for the

safe keeping and proper payment of all moneys that may come into his hands.

REGISTRATION. 1889, c. 181, ss. 3 (IN PART), 4, 5, 6, 7.

SEC. 3. That chapter thirty-four of The Code be amended by striking from section three thousand one hundred and twenty-five the words "for confirmation," and by adding immediately after section three thousand one hundred and thirty-four the following words: "Any person who shall begin the practice of medicine or surgery in this State after the passage of this act, shall personally appear before the Clerk of the Superior Court of the county in which he resides or practices within thirty days after obtaining a license from the Board of Medical Examiners of the State, as now provided by law for registration."

SEC. 4. That any person applying for registration as herein provided, shall produce and exhibit before the Clerk of the Superior Court a license obtained from the Board of Medical Examiners aforesaid; and upon such exhibit being made as aforesaid, the clerk shall register the date of registration with the name and residence of such applicant in a book to be kept for this purpose in his office, marked, "Register of Physicians and Surgeons," and shall issue to him a certificate of such registration under the seal of the Superior Court of the county, upon the form furnished him, hereinafter provided, for which the Clerk shall be entitled to collect a fee of twenty-five cents. The person obtaining said certificate shall be entitled to practice medicine or surgery, or both, in the county where the same was obtained, and in any other county in this State; but if he shall remove his residence to another county he shall exhibit the said certificate to the clerk of such other county and be registered, which registration shall be made by said clerk without fee or charge, *Provided*, that any one having obtained a temporary license, as provided in section three thousand one hundred and twenty-five of The Code, shall not be entitled to register, but may practice during the time such license shall remain in force.

SEC. 5. That any person who shall practice medicine or surgery in this State without first having registered and obtained the certificate as aforesaid shall be guilty of a misdemeanor, and upon conviction thereof shall be fined not less than twenty-five dollars, nor more than one hundred dollars, or be imprisoned at

the discretion of the court, for each and every offence: *Provided*, this act shall not apply to women pursuing the vocation of midwife, nor to reputable physicians or surgeons resident in a neighboring State coming into the State for consultation with a registered physician of this State.

SEC. 6. That any Clerk of the Superior Court who shall register or issue a certificate to any person in any other manner than that prescribed by this act shall be guilty of a misdemeanor, and upon conviction thereof shall be fined not less than two hundred dollars and shall be removed from office.

SEC. 7. That it shall be the duty of the Medical Society of the State of North Carolina to prescribe a proper form of certificate required by this act.

THE CONJOINT MEETING WITH THE STATE BOARD OF HEALTH.

President's Address.

THE President, Dr. George Gillett Thomas, said in opening the session of the Board of Health and the State Medical Society :

It is hardly necessary to say that this joint meeting brings with it the report, chiefly, of smallpox. The Secretary has other matters of great and grave importance besides, but to the rank and file, the serious question that has been presented to us has been the care of smallpox in the counties and in the communities. Most of you know that for a number of years the many States of the Union have been largely infected by smallpox. Our neighboring States have had a large number of cases, but for a long time we enjoyed a wonderful immunity. Gradually, however, the disease has crept in, and its presence and the mode of its introduction is largely a matter of history. It has come chiefly from Georgia, Alabama, South Carolina and Virginia. I regret to say that the very imperfect care exercised by our neighbor on the north has endangered the health and lives of a great many citizens in the eastern counties of North Carolina. It has brought to this Board a great deal of trouble and anxiety, and to the local health and hospital authorities expense as well as anxiety.

I beg leave, as a part of what I have to say this morning, to submit to you the report of a committee appointed by the State Board of Health to start the investigation of smallpox in North Carolina. This was addressed to the Board, and by permission of the Secretary I read it to you.

WILMINGTON, N. C. May 16th, 1899.

To Dr. R. H. Lewis, Secretary N. C., Board of Health, Raleigh N. C.

DEAR SIR: The State Board of Health has for the past two years seriously considered the outbreaks of smallpox in North Carolina, and during the winter and spring of 1898 sought to aid the local authorities as far as possible in the management of the disease wherever it appeared.

The first case reported was in Wilmington, January, 1898. Immediately following this case, the Charlotte authorities found one in their midst. In both of these cities, the disease was limited to the original cases, or a few persons immediately exposed to the infection. In Charlotte the authorities deemed it wise to have an expert sent in by the Marine Hospital Service, to finally determine the character of the disease, which was somewhat in dispute, and also to advise as to the best management of the outbreak.

Shortly after this, quite an epidemic of it appeared in Iredell County, and caused considerable alarm. Dr. C. P. Wertenbaker, M. H. S., at the request of local authorities went to Statesville, and, as he had done in Charlotte, advised us the best methods of isolating and controlling the disease. Under the wise management of Dr. H. F. Long, of Statesville, the malady at one time threatening the entire county of Iredell and the neighboring county of Rowan, was stamped out, not however until sixty odd cases had been treated. After this, it appeared in Montgomery and Randolph, and in both of these counties Dr. Long took charge of affairs and managed them as successfully as he had done in his own county, first and last treating over two hundred cases. After this, there appeared one case in Wilson, and several in Durham.

During the hot months the disease disappeared.

In October it was introduced into Edgecombe County, from Norfolk, Va., and in the course of several months in the whole county and a part of Nash, about seventy-five cases were treated. In January, a case developed in Northampton, and later seven or eight more, all of the original ones coming from Norfolk or its vicinity. Of the subsequent outbreaks which are not spoken of in the report, the Secretary will give you the full history.

The serious condition of affairs existing in Edgecombe County

in January, 1899, induced the local authorities of that county to seek advice and aid of the State Board. The President of the Board met these authorities, and, as the Board was in no manner provided with the means to assist materially the local authorities, and as the menace to all the Eastern counties was very marked, it was deemed wise that a committee be sent out to investigate the conditions that existed, bordering on that portion of Virginia where smallpox was most prevalent, and to report to this Board such suggestions as appeared timely for its adoption, in sending to aid the county officials in controlling the disease if it had appeared or in preventing its approach.

In pursuance of this determination of the State Board, a committee of Doctors, Thomas and O'Hagan, visited the counties of Pasquetank, Perquimans, Chowan, Washington, Wilson and Wayne. In Elizabeth City, we found the physicians thoroughly alive to the situation. In a conversation with these gentlemen, we were informed that the cases of smallpox in the town had been isolated and vaccination was progressing quite rapidly under an ordinance making it compulsory. As far as possible, all exposed persons and those not protected by vaccination in the county were sought out, and protection afforded them. Your committee was afforded an opportunity to meet and address quite a large party of citizens who had assembled in the courthouse. They urged upon the people the necessity to uphold the action of the authorities in the matter of vaccination which was then in progress. The outbreak in the county was much more serious, but the physicians in charge assured us that further spread would be limited. Reports which have reached this Board since the return of the committee amply justify the prediction of these physicians.

It was most encouraging to see here, and generally throughout our visit made under the orders of your Board, how closely to the right line the physicians were coming, and how thoroughly they appreciated and taught the value of vaccination. With very few exceptions, the physicians of the State have not sought to minimize the dangers of this dread disease, or to allay the excitement, which was most salutary, except by promising to the citizens exemption from attack if they would submit to vaccination. As usual, these gentlemen of the profession have lowered the rates charged generally for vaccination, in order to assure to the general public the great boon that follows this preventive measure.

From Elizabeth City, your committee went to the town of Hertford, and were received by the physicians most hospitably. At night we were greeted by a large portion of the citizens of the town and the neighboring country, including very many ladies. To this audience your committee appealed again for support of the local health authorities. We assured them that under the intelligent direction of the physicians of the good town and county, ample protection would be afforded, if they would only see the necessity of earnestly asking for their advice, and being guided by it.

In Edenton, the next point visited, the situation seemed to be, under the wise direction of the best physicians, taking a very satisfactory course. The cases of smallpox were in the country, six or eight miles from the town of Edenton, no case of it having appeared then or since in the town. At short notice a meeting was called in the historic courthouse of that honorable and ancient borough, and was attended by a large body of the citizens, representing all classes.

It is well to remark here, that at this meeting we were much aided by the unsolicited statement of one of the County Commissioners, a thrifty honest farmer. He said that it behooved all persons to seek quickly and successfully the protection of vaccination, that he knew the horrors of smallpox, having suffered from its fearful ravages in his own family. He told most feelingly how he was left alone to do the nursing and care for the sick in his household, all of his neighbors and friends, frightened by the loathsome disease, standing afar off, and leaving him outside the pale of human aid and that helpful sympathy which is generally accorded by one's neighbors in times of distresss. We hope the appeal was not without effect. From Edenton, we visited Plymouth. The bad weather which set in shortly after our arrival, prevented us from seeing as many of the citizens as we had hoped to meet and address; however, we sought here, as elsewhere, to impress upon the people the lesson we had started out to inculcate. At this point, a summons reached us from the Secretary of the Board to go at once to Goldsboro, examine and report to the Mayor upon certain suspicious cases that existed in that town, none of which had been reported as smallpox except one. We visited four houses. In the first was the reported case. This was varioloid and was the one about which there had

been most question among the medical men of the town. One case was so suspicious, that we suggested the house be placed in quarantine and watched. There were two other cases of smallpox of very marked character. We did not seek for any further information, as it was evident from these that the town was infected. We subsequently met the Board of Aldermen, at which time there were in attendance a large body of citizens. Here again we most earnestly urged prompt protective measures, both of isolation of the diseased persons and vaccination of all citizens who were not already protected.

From this point it was the intention of your committee to visit the counties of Northampton, Gates, Camden and Currituck. One of your committee subsequently visited the county of Halifax, and advised as to the management of affairs in the outbreak in that county. On the day succeeding the visit to Wayne County, your Committee thought it best to go to Raleigh, and have a consultation with the Secretary and Colonel Shaffer, as members of the Board, before proceeding further in this matter, it being the opinion of your Committee that the work which they had begun could only be efficiently done by an inspector who could devote his full time to it. At a meeting of the Board, held in the Secretary's office, it was unanimously resolved that the members present should visit his Excellency, Governor Russell, and lay before him the conditions, as they appeared to the Board, explaining the situation in full, and asking him to provide for the employment of an inspector for a specified time. The report of the meeting of the Board and its visit to the Governor will appear in the Secretary's report of the meeting. It gives this Committee pleasure to record the earnest interest of the Chief Executive of the State in the efforts of the State Board for the protection of the commonwealth from a widespread invasion of smallpox. A prompt response to our appeal for his aid was most encouraging, and bespoke a broadminded realization of the dangers that existed in, and the methods necessary to avoid them, as well as an appreciation of the necessity for the maintenance of some such supervisory sanitary body as the State Board of Health. There was no hesitation in his response to our requests, and the work of Dr. H. F. Long, the inspector appointed, as the result of this visit to the Governor, shows itself. It seems to us safe to say that no community which

he has visited has failed to understand the preparedness for this position of inspector, which his previous experience had given him.

We cannot close this report without recording that the exigencies of business forbade your Committee from completing the tour originally mapped out for them, but it has a pleasing recollection of the visits as far as made, and to have met and known personally many of the able men who make up the profession in Eastern North Carolina, and feels amply repaid for the inconveniences and loss of time. It is a matter worthy of record, and one of which we may be justly proud, that these gentlemen so thoroughly understood the situation, and so intelligently advised for its control. The esprit-de-corps of this part of the State's medical men is remarkable, and justifies among other things the many encomiums of praise that have been awarded them from time to time by disinterested and distinguished visitors to our yearly meetings. It is hoped that the work of your Committee, so ably taken up and completed by Dr. Long, will be productive of much good, and that the advent of another winter will find the State very largely protected from further outbreaks of smallpox, by a constantly increasing number of successful vaccinations.

By the experience of the past winter, and the intelligent work of Dr. Long, it is safe to hope that the Governor and his counsel will come as generously to the relief of the State Board, should the cause arise demanding their aid and advice, in the coming months. But for the assistance derived from the Emergency Fund, as provided for by our Health Laws, the appointment of inspector would have been impossible, and while the members of the Board, always responded to calls for their services, and for visits to infected points, the work was best done by one authorized person, who gave to it his full time, and happily for us the benefit of a large experience.

We have not, we fear, seen the last of small-pox, and another winter will most probably bring us new cases, but the Board feels justified in the assurance that if we are to deal with another series of outbreaks, methods for its control are now so well studied that the measures to be adopted under the guidance of the inspector will promptly stamp out the disease wherever it appears.

Yours truly,

GEO. GILLETT THOMAS,
CHAS. J. O'HAGAN,
Committee.

This seems right now the most important consideration for the Board of Health. I do not know that the physicians in North Carolina can undertake a more important measure than to preach the propaganda of vaccination, and the appearance of the disease at present seems to foretell a rapidly increasing death rate. The epidemic is evidently gaining in virulence. Such was the experience in South Carolina. The Secretary of the Board of Health of that State told me in March that after two years, without any apparent cause the death rate ran rapidly from 1½ or 2 per cent. up to 10 per cent. and upwards, varying according to locality. Next winter is going to bring us new cases, and a more virulent type of the disease. In Morganton in a recent outbreak the death rate has already reached 10 per cent., divided between negroes and whites about equally. It may be that the people will wake up to the fact that smallpox is a little worse than vaccination. Upon that point I wish to give expression to what appears to me a justified opinion. I believe that every physician who goes out among his clientele to preach vaccination, and who succeeds in convincing them of its necessity, ought also to impress upon them, absolutely, the care of the vaccinated arm. It is not bad virus, it is not anything ordinarily in the vaccinated person that is making these bad arms. It is the infection of the vaccinated point by a breach of the seal and the introduction of germs from without. I am so satisfied of this, that I would like to state to you a few facts which have convinced me. When smallpox broke out in Wilmington in 1898 I did a reasonably large number of vaccinations, covering all ages. I used at that time the virus from a National Vaccine Establishment in the District of Columbia, and the Marietta Farm, in Pennsylvania, indiscriminately, first one and then the other. In infants to whom tender care and special attention was given by both parents and nurses, I say this with guarded care, I know I did not have a single broken seal in the infants, all of whom went rapidly through the stages of typical vaccination, but among older children and adults such a favorable condition did not always obtain, as in many cases the vaccinated portion of the body was not protected, or a lack of care allowed a break in the seal, through which infection was induced, and the much talked of sores said to result from bad virus, appeared. If you can by careful directions, which I do not deem it necessary to detail to this

intelligent body, impress upon your patients, both the reasons and methods of protecting the vaccinated points, you will accomplish all that ought to result from this important measure, and avoid the disagreeable ulcers that have so unfavorable prejudiced the laity against its adoption. As there can be no doubt of the necessity of vaccination, and as every doctor in the State is responsible to his patients for such timely advice as will protect them from the dire scourge of smallpox, it behooves you one and all to consider the best means of convincing those whose confidence in your skill has put the health of themselves and their families under your care, of the prime necessity of promptly erecting this sure and only barrier against the disease, the only sure protection known to the world against the disease—successful vaccination.

Annual Report of the Secretary of the North Carolina Board of Health, 1898-99.

R. H. LEWIS, M. D., Raleigh, N. C.

The Seventh Biennial Report of the Board to the General Assembly through the Governor, which gives a complete statement of its work for the two years ending December 31, 1898, includes that done between the time of our last meeting and that date. The report has been published, and as it will be sent to any one requesting it, it would be a work of supererogation to repeat it here. Suffice it to say that our principal work since we last met is included in: An official examination by Col. A. W. Shaffer, the engineer of the Board, of the watersheds and works of the public water supplies of the State, including both chemical and bacteriological examinations of the same; an examination of the water supply of the State Hospital at Morganton, and of certain wells suspected of causing typhoid fever at Williardsville and at North Wilkesboro, infection with intestinal bacilli being found at both places; sanitary inspections of the State Hospital, a particular study being made of a small outbreak of typhoid fever there, the conclusion reached being that it was caused by an infection of a part of the milk supply; a sanitary inspection of

the School for the Deaf and Dumb at Morganton, of the North Carolina College of Agriculture and the Mechanic Arts at Raleigh, and of the State prison; an investigation, by request of the Superintendent of Health of Alamance county, of the conditions at Swepsonville, in the hope of ascertaining the cause of the very unusual outbreak there of malarial diseases; a health conference with the people of Winston-Salem.

SMALLPOX.

Since the period covered by the Biennial Report, the work of the Board outside the regular routine work of the secretary has been practically confined to work in relation to the legislation and to the management in an advisory way of the epidemic of smallpox which has been prevailing throughout the State. Although a part of this has been covered by the Biennial Report, it would doubtless be more satisfactory to consider the matter as a whole and report the epidemic from the first case to May 1, 1899.

SMALLPOX IN NORTH CAROLINA.

The first case occurred in Wilmington on January 12, 1898 in the person of a negro train hand on the Atlantic Coast Line, whose run was into South Carolina, in which State the disease was prevailing—warning of which was given in the Bulletin for December, 1897. Prior to May, '98, it showed itself in Charlotte, 5 cases, 2 deaths, all colored, origin South Carolina; in Salisbury, 1 case, colored mail agent running between that point and Knoxville, origin Tennessee; in Buncombe, 2 cases, colored, origin South Carolina; Alamance, 2 cases, colored, origin Alabama; Clay, 10 cases, white, origin Georgia. Since May 1st, the disease has occurred in all the counties named except Clay, and in 32 other counties, making in all 38 counties that have been visited by it, the infection in most outbreaks coming from Norfolk, Va., and vicinity. The official reports for the month of April show smallpox still present in the following counties: Anson, 2; Bertie, 1; Chatham, 2; Chowan, 15; Currituck, 1; Gates, several; Hertford, 2; Iredell, 1; Martin, 3; Mecklenburg, 2; Moore, 4; Nash, 7; Union, 8; Wake, 43—14 counties. While new outbreaks have been reported since May 1st, '99: 5, Catawba (Hickory), Edgecombe (Rocky Mount), Gates, Rockingham (Mayodan), Burke

(Morganton); the last name is the only one which does not appear in tabulated statement given below. There have been so far 14 cases in Morganton, with two deaths among the whites. The reporter did not separate the races.

The total number of cases from the introduction of the disease into the State on Jan. 12th, 1898, to May 1st, when the reports closed, was 616, with 17 deaths, or 2.76 per cent. Of this number 182 were whites with eight deaths, 4.93 per cent., and 454 colored with nine deaths, or 1.97 per cent. This death rate is somewhat larger than appears to have been the case in some other States whose records can be depended on—Ohio, for instance, where of 770 cases, only 7 died, or less than 1 per cent. Indeed our smallpox death rate has been quite respectable in view of the fact that many wiseacres have persisted in asserting that the disease was not smallpox but "chickenpox," "Cuban itch," "elephant itch, etc." But still the mortality was very low and that very fact increased the difficulty of managing the outbreaks, by rendering the people more indifferent to the importance of vaccination. Formerly when asked my opinion as to the best method of getting the people vaccinated, I would say, "A case of smallpox." Now I would say a number of cases with several deaths.

In view of the rapid spread of the disease during the latter part of February it was thought advisable by the President of the Board to investigate the matter by a personal inspection of some of the infected districts on the part of a committee from the Board. This inspection of several of the Eastern counties was made by himself and Dr. O'Hagan and the conditions were found to be such that he called a meeting of the Board at Raleigh on March 5th to consider them. At this meeting the report of the committee was received and the situation fully discussed, the unanimous conclusion being that the time had arrived for calling upon the Governor for authority to expend a part of the emergency fund appropriated in section 29 of the act in relation to the Board of Health. In pursuance of this decision the members of the Board present waited upon his Excellency and laid the facts before him. He showed his intelligent appreciation of the situation by promptly giving the authority desired. Re-assembling, it was decided to employ a competent physician who should, under the title of Smallpox Inspector, visit infected points, decide

doubtful diagnosis, interview local health officers, explain to the county and municipal authorities the gravity of the situation and the best way of meeting it, and impress upon the people the overwhelming importance of vaccination. Dr. Henry F. Long, of Statesville, Superintendent of Health of Iredell, in view of his intelligent management of a considerable outbreak of smallpox in his own county, was selected for the place. The results have shown the wisdom of the action of the Board and of their selection, as the unanimous testimony from the points he has visited has been that his presence and advice have been of great assistance. I am satisfied that the State never spent the same amount of money to better advantage than the $395.75 spent in this cause from March 13th to May 1st.

Owing to the blessed fact that epidemics of infectious diseases of any magnitude have been extremely rare in our State, our people are unaccustomed to the restraints and duties incident to the proper management of them according to the principles of modern hygiene and this fact, combined with the mildness of the disease, engendering indifference to its dangers—such indifference in some instances, at first, before the public were generally awakened to the fact that genuine smallpox was among us, that the patient not feeling sick much would not call in a physician—increased the difficulties of management. The exposures resulting from this were necessarily very numerous, and why so many unvaccinated persons escaped, as they unquestionably did, is a mystery. But strange as it may seem, the greatest trouble has come from our own profession. In some instances it arose from inexperience with the disease and the consequent failure to make promptly the correct diagnosis and report the case to the health officers. This was perhaps in some instances excusable, although it must be said that a knowledge of the elementary principles of sanitary rules or a regard for them would have insured the taking of the proper precautions. This, however, was a small matter compared to obstructions to the proper control of the disease which arose in another way, caused probably by unfortunate factional disagreements in the profession in certain communities —very few I am glad to say. I refer to the denial of the correctness of the diagnosis of smallpox by some physicians, thereby furnishing a centre for the intractable members of the community to rally around, and rendering the enforcement of

the necessary regulations very much more difficult. Where the dissenting physician saw the case or cases in person it was doubtless an honest difference of opinion, but usually he refused to visit the patient, while he continued to publicly express his opinions. With the lights before me I can see no sufficient justification for this attitude on the part of a medical man. In the matter of disease, the physician occupies with the people a position of authority, and as a patriotic citizen, to say nothing of his professional obligations, the abuse of that high position, from whatever motive, in a way calculated to increase the misfortunes of his neighbors, is, to express it in the mildest possible terms, extremely indiscreet. In every instance where the profession was united no trouble was experienced, the authorities, both county and municipal, responding promptly to their suggestions.

In addition to directing the movements of the Inspector I have written a great many letters to superintendents of health, mayors, county commissioners, and others, and have prepared two circulars—the first in July, 1898, which was sent with a letter to the editors of the newspapers of the State for publication, and the second in March, 1899, which was printed in the form of a poster, a copy of which is attached, which was sent to the superintendents of health with a letter requesting them to post in conspicuous places.

On the whole, when we take into consideration the conditions already alluded to, and, in addition, the imperfections in our sanitary machinery, I think there is good ground for congratulating ourselves and the State that the various outbreaks have been generally so well managed and that so many of the people have been vaccinated. While there has been a good deal of opposition to vaccination, it is gratifying to know that several enterprising communities with officials of nerve carried it out under compulsion, going so far in more than one instance as to commit the recalcitrant to jail, or to work upon the roads, until a more enlightened frame of mind was reached. This is fortunate, for the seeds having been widely distributed there is reason to fear a recrudescence of the disease next winter and probably in a severe form.

The following is a tabulated statement of smallpox in the State from January 12th, 1898, to May 1st, 1899, when the last official report was received.

TABULATED STATEMENT.

RECORD OF SMALLPOX IN NORTH CAROLINA FROM JANUARY 12, 1898, TO MAY 1, 1899.

COUNTIES.	CASES.			DEATHS.		
	W.	C.	T'L.	W.	C.	T'L.
Alamance	20	2	22	1	.....	1
Anson	.....	5	5	.....	.....	.....
Beaufort	.....	2	2	.....	.....	.....
Bertie	.....	12	12	.....	1	1
Buncombe	.....	11	11	.....	1	1
Catawba	.....	13	13	.....	.....	.....
Chatham	1	18	19	.....	.....	.....
Chowan	.....	21	21	....	1	1
Clay	10	.....	10	.....	.....	.....
Columbus	2	2	4	.....	....	.....
Craven	.....	2	2	.....	.....	.....
Currituck	10	30	40	.....	.....	.....
Durham	.....	8	8	1	.....	1
Edgecombe	43	13	56	.....	.....	.....
Gates	4	30	34	.....	.....	.....
Guilford	3	.....	3	.....	.....	.....
Halifax	.....	9	9	.....	.....	.....
Hertford	1	2	3	.....	.....	.....
Iredell	16	57	73	.....	.....	.....
Johnston	.....	1	1	...	.....	.....
Lenoir	1	16	17	6	.....	6
McDowell	14	.....	14	.....	.....	.....
Martin	.....	3	3	.....	.....	.....
Mecklenburg	1	7	8	.....	3	3
Moore	.....	6	6	.....	.....	.....
Nash	.....	14	14	.....	.....	.....
New Hanover	3	3	6	.....	.....	.....
Northampton	.....	9	9	...	.....	.....
Pasquotank	14	35	49	.....	1	1
Perquimans	1	.....	1	.....	.....	.....
Rockingham	.....	1	1	.....	.....	.....
Rowan	2	23	25	.....	.....	.....
Tyrrell	4	.....	4	.....	.....	.....
Union	.....	8	8	.....	.....	.....
Wake	5	64	69	.....	1	1
Warren	3	1	4	.....	.....	.....
Wayne	3	24	27	....	1	1
Wilson	1	2	3	.....	.....	.....
Total No. cases	162	454	616	8	9	17
Death Rate per cent				4.93	1.97	2.76

Total number of counties 38.

LEGISLATION.

In the early part of the session of the recent Legislature I sent a circular letter to all superintendents of health asking for any suggestions they might have to make as to the amendment of our health law. Many did not reply at all and most of those who did had no amendment to suggest, Among those expressing an opinion one or two favored an increase in the powers of the Board for which public sentiment was not yet ready, but most confined themselves to the method of electing the county superintendent of health. They were about equally divided between retaining the present plan of election by the county commissioners and returning to the old plan of election by the county board of health. After very careful consideration of the matter I finally settled upon a compromisse method which, in short, constituted a new county board of health, to be composed of not more than three registered physicians, the county commissioners, and the mayor of the county town, which board would elect the superintendent and fix his salary. This was regarded by those with whom I discussed it as a good solution of the difficulty, but knowing from experience how dangerous a discussion of any technical bill was with no one on the floor thoroughly understanding it, I decided, after advising with some judicious friends, that the gain to be obtained was not sufficient to justify the risk, and abandoned it. I did, however, after a good deal of tribulation, succeed in securing the enactment of "An Act to Protect Water Supplies," which is an advance on the line of sanitary progress in the State. This matter is fully set forth in an editorial prepared for the May *Bulletin* which is now in press.

But the most important legislation bearing on the public health for many years was the amendment of the medical license laws so as to require of all applicants for license a diploma from a medical college in good standing requiring an attendance of not less than three years, and furnishing such facilities for clinical instructions as should meet the approval of the Board of Medical Examiners. It is unnecessary to say that nothing is so important to the preservation of the public health in a community as the thorough and practical education of its physicians. Acting formally in another capacity, as chairman of the Committee on Legislation of the State Medical Society, I had the honor of assisting in securing the enactment of the amendments. As the medical

license laws, as amended, were printed in full in the April number of the *Bulletin*, it is unnecessary to discuss this matter further, other than to congratulate the Board and the Society on now having the best medical license law in the country.

The annual health conference was held in Winston-Salem on December 7th, 1898. I thoroughly advertised it through the local newspapers, which were very kind in doing it, and by means of a circular letter giving the programme, distributed in advance, but the attendance for a town of that size was a disappointment to us—caused in part, let us hope, by the uncomfortable climatic conditions prevailing at the time.

As per appointment I attended the National Conference of State and Provincial Boards of Health of North America for 1898 at Detroit in August last, and that for 1899 at Richmond the 23rd and 24th of this month. These meetings, composed entirely of practical health officers and members of boards of health, have been of value to your Secretary in reviving his interest, stimulating his zeal, and in broadening his views. They afford an excellent opportunity in private conversations and in public discussions to compare the work and methods of the different boards, and in conclusion I wish to say, as the result of such a comparison, that, especially in view of the tremendous inertia on the part of the people—and largely of the profession too, I regret to admit—and considering our meagre appropriation, we have no reason to be ashamed of our work—unsatisfactory as it is. But the people have been awakened as never before in my experience, by the smallpox epidemic, and I hope that it is the beginning of better things.

Minature of Poster Sent to the Superintendents of Health.

☞ NOTICE !

Prevention of Smallpox.

Smallpox is one of the most contagious and one of the most loathsome of all diseases

It is now widely scattered over the United States, and is prevailing at twenty points in our own State to-day. There is a danger of a widespread epidemic among our people.

Under these circumstances every eruption appearing after two or three days of headache, backache and fever, or even after merely a general bad feeling, especially if most prominent on the face and hands, should be regarded as smallpox, and the proper precautions taken promptly and continued until the patient is seen by a reliable physician.

Be not deceived by false prophets who seek popularity by prophesying smooth things and call it chickenpox. According to one of the highest authorities, with a very few exceptions, chickenpox is confined exclusively to childhood up to the age of twelve, and is rare after ten. So if the patient is past childhood it is almost surely smallpox, although it may be a mild attack But mild cases can cause the severest form in the unvaccinated.

Fortunately, thanks to the genius and courage of the immortal country doctor, Edward Jenner, we have almost sure protection against the disease within the reach of all in *vaccination*. If properly done it is practically as certain a preventive as a previous attack of smallpox itself. In Germany, with its fifty millions of people, in 1871, before vaccination was made compulsory, the number of deaths from smallpox was 143,000, while in 1897, under compulsory vaccination, it was only 116.

When smallpox is present in a community those who have been vaccinated before should be vaccinated again, as its virtues disappear more or less with time.

There seems to be a prejudice against vaccination on the part of some. This prejudice is due to ignorance of the facts. The effects of vaccination are really serious so seldom that they need not be taken into account. With the improved virus from the cow there is not the slightest danger of transmitting such human diseases as consumption, scrofula or syphilis

Having this sure preventive right at hand, a panic on the subject of smallpox is utterly inexcusable. Those who are vaccinated—but only those—can laugh at smallpox, and go on with their usual business in confidence.

Whenever smallpox appears in a community it is all-important that the sick person should be separated from the well as soon as possible No one should visit him, and only his physician and nurse should see him. In fact, when smallpox is prevailing visits of mere sympathy or curiosity should not be paid to any case of sickness until its nature has been declared by the attending physician.

All persons who have been exposed to smallpox should be vaccinated immediately and detained or quarantined in comfortable quarters for fifteen days from the time of exposure—until the danger of their having it has passed. Before leaving the house of detention they should take a thorough bath with warm water and soap and immediately after that another with some suitable disinfectant, and put on clean clothes from the skin out. The clothes in which they were exposed should be boiled or otherwise disinfected before being worn again, or removed from the house. The poison of smallpox can be carried in the clothes for an indefinite time.

Upon the occurrence of smallpox in a community the people should interest themselves in seeing that the regulations to prevent its spread are obeyed, for the sake of the business of the town, as well as their own personal safety. This applies with special force to the operatives in factories and mills, for the reason that the shutting down of a mill is such a serious matter to them. Employment elsewhere cannot be expected, because no mill would receive hands from another mill among whose people the disease existed. Operatives at work are less liable to contract the disease than if idle and engaged in social visiting.

After the death or recovery of a person who has had smallpox everything that has been in contact with him should be burned, or disinfected in the most thorough manner by the health officer.

Under the law (chapter 214, Laws of 1893) vaccination, quarantine, etc., are under the control of the County Superintendent of Health, or the medical health officer of a city or town, where there is one.

Ample powers are conferred by sections 23 and 25 upon the Boards of County Commissioners, and the authorities of cities and towns to enforce the necessary rules, the language of one of the sections being that they are authorized to make such regulations, pay such fees and salaries and *impose such penalties* as in their judgment may be necessary for the protection of the public health.

The reason for such laws is that the State does not permit individual citizens, for a mere whim or prejudice, to endanger the health and lives and business of their more reasonable neighbors.

Let everybody be vaccinated promptly.

RICHARD H. LEWIS, M. D.,
Secretary State Board of Health.

Report of the State Smallpox Inspector.

Dr. H. F. Long, State Smallpox Inspector made the following report :

Before making my report I would like to say a few words about smallpox which is not included in the report. The great difficulty we have had in controlling the outbreak of smallpox in this State has been due to the mild form in which the disease existed. It came here, as best I can learn, from Mexico. It was brought by a railroad contractor who gathered a lot of negroes from Birmingham, Ala., and carried them to Mexico three years ago to work on a railroad. Every negro contracted smallpox as soon as he reached there, and as soon as he was well, without being disinfected and without change of clothing he made his way back. There they came in contact with other negroes, and had what they termed "Mexican Bump," and the disease existed among the negroes a long while before it spread to the white people. I have found that all over the State, wherever I have been, smallpox exists in the very mildest form, and I also find that you cannot find any of the old negro slaves who have not been vaccinated; the younger generation of negroes we have are not vaccinated, but they are direct descendants of a people who have been vaccinated for generations. In McDowell County last winter I witnessed an outbreak. There were fifteen cases, and every case was confluent and every case was malignant, and the mortality rate was 50 per cent. So far as I can gather, no man in that community had ever been vaccinated. In Iredell we had seventy-five cases, and there were only twelve cases that anything like approached to the confluent form, and those who had it were very old negroes who had been vaccinated when they were children. We had no death at all in Iredell County, and almost all the cases were the very mildest form. At Morganton I inspected a family named Houston, and I think three died, and every case in the family has been confluent. One case was hemorrhagic, the best I can find. Houston's family had not been vaccinated, and Mrs. Houston told me that neither her father nor her husband had ever been vaccinated, and they had a mortality rate approaching the old mortality, before vaccination was discovered. A few hundred yards away I also inspected

some cases among negroes who had been vaccinated, and it showed in the mildest form. So the further away from vaccination we are, the nearer approach we have to the confluent and malignant form. The nearer to vaccination we get, the nearer approach we have to varioloid. If smallpox strikes a neighborhood where people have been vaccinated for generations, the form will be mild. If it strikes a neighborhood where the people have not practiced vaccination, the form will be confluent and malignant, so the degree will depend altogether on locality—on how well the community is and has been permeated by vaccination. The report I have is short, and is simply the places I visited, and the number of cases I found.

STATESVILLE, N. C., May 28th, 1899.

To Dr. R. H. Lewis, Secretary State Board of Health:

SIR: I wish to submit to the State Board of Health the following report of the work done by me as smallpox inspector of the Board.

My first inspection was made at Greensboro, March 11th, '99, where I found a suspect, by name Fentress, who had been following the occupation of beer-bottler at Newport News, Va. He was taken ill February 27th, and was seen by Dr. Ledbetter on March 10, and by me on the 11th. Diagnosis, smallpox.

March 15th, at Warrenton; suspect, Mr. James Tarwater, white, aged 33 years; diagnosis by attending physician, Dr. T. J. Macon, smallpox. Well managed by physician in charge.

Burlington, N. C., March 16th. Inspection showed 19 cases of smallpox. No measures whatever had been taken to stamp out disease.

March 22, at Carthage, discovered one case, well quarantined, well managed; case came from Norfolk, Va. Attending physician Dr. McLeod.

March 24th, inspected at Goldsboro. Found 15 cases of smallpox, 2 cases of chickenpox, the latter in children. Attending physicians, Dr. Powell and Dr. Cobb.

At Kinston, March 25th, I found 8 cases of smallpox; 5 about recovered; all quarantined at their homes. The authorities took more active steps at once.

At Whiteville, March 26th; no cases then; history of one case which had recovered; at Brinkley, two cases had recovered.

Attending physician, Dr. Harrill, had managed cases well.

Mt. Olive, March 29th; no inspection; history of case which had occurred 8 miles from town ; had recovered and was gone. Had been treated by Dr. Aaron, who confessed he did not known what was the nature of disease.

At Fremont, March 29th, found two cases of smallpox, in family named Barnes. These patients were sisters of a telegraph operator who had been treated for what was called chickenpox. Attending physician, Dr. Lewis, who made diagnosis of chickenpox.

At Wilson, March 29th ; no inspection ; history of two cases which had been well managed and dismissed by Dr. Moore.

Rocky Mount, March 30th ; inspected eight cases of smallpox in period of desiccation. Ordered disinfected and released. Dr. Wimberly in charge.

At Tarboro, 30th, no inspection ; history of number of cases in county which had been well managed and discharged.

April 2nd, Newton ; found two cases in negro family. Attending physician, Dr. Maser. No action had been taken.

April 11th, at Peedee, found one case recovered ; had come from Raleigh. Diagnosis by Dr. Kerr, Syphlis.

April 12th, Northampton State farm, Halifax, one case, pustular syphilide ; brought out by vaccination. Attending physician, Dr. Ferguson.

April 13th, at Washington, found two cases of smallpox in pest house ; were well managed by Dr. J. Taylor.

April 15th, inspection at Monroe discovered two cases in pest house. All well managed. Dr. Ashcraft.

Pittsboro, April 16th, found four cases in the country ; well managed by Dr. Chapin.

Charlotte, April 18th, found one case, a drummer named Sossamon. Well taken care of by Dr. Stroug.

April 22nd, at Greensboro ; inspection of three cases in pest house ; found them suffering from pustular syphilide induced by vaccination. Dr. Ledbetter in charge.

At Morganton, May 18th, inspected six cases ; history of two deaths from smallpox ; attending physician reported 15 cases in all. Dr. Laxton in charge.

At Hickory, May 23, one case of smallpox came from Morganton. Dr. Abernethy in charge.

Smallpox has occurred in this epidemic in all its forms, from

mildest varioloid to most malignant confluent type, and one case of hemorrhagic smallpox, which died at Morganton. All cases of malignant smallpox that I saw occurred in those who had never been vaccinated and whose parents and forefathers had never been vaccinated. Every case of discrete, or even coherent smallpox, occurred in those whose parents had been vaccinated. In every instance the infection came from Virginia or South Carolina. In every town where I made inspection I reported to the mayor, board of aldermen and representative citizens, gave them my technique for handling and taking care of the disease, and urged compulsory vaccination.

Respectfully submitted,

HENRY F. LONG.

CONSTITUTION.

ARTICLE I.

TITLE OF THE SOCIETY.

The name and title of this Society shall be "The Medical Society of the State of North Carolina."

ARTICLE II.

OBJECTS OF THE SOCIETY.

The objects of this Society shall be the advancement of medical knowledge, the elevation of professional character, and the promotion of all measure of a professional nature that are adapted to the relief of suffering humanity, and to improve the health and protect the lives of the community.

ARTICLE III.

MEMBERS OF THE SOCIETY.

SECTION 1. This Society shall consist of Active and Honorary Members, and Honorary Fellows.

SEC. 2. The Active Members shall consist of such regular physicians as have complied, or shall comply with the laws of the State, ratified February 28, 1889, and shall receive the approval of the Committee on Credentials and a two-thirds vote of the members present at the meeting at which their applications for membership are presented. They shall be required to sign the Constitution and By-Laws of the Society, pay an initiation fee of five dollars, and shall be liable for such dues for defraying the expenses of the Society as the Society may, from year to year, agree upon.

SEC. 3. The Honorary Members shall consist of such regular physicians as have won distinction by their contributions to

medical science; those elderly physicians who, prior to their retirement from practice, have displayed a proper interest in the welfare of this Society, or who, by their example, have reflected credit and honor upon the profession. They must receive a two-thirds vote of the members present at the meeting at which their names are presented for election. They shall be exempt from all dues and fines and shall be entitled to all the privileges of the Society except the right to vote and hold office.

SEC. 4. The Honorary Fellows shall consist of such physicians as have been members of this Society for thirty years, and whose dues have been paid during that time. They shall receive a two-thirds vote of the members present at the meeting at which their names are proposed for promotion. They shall be exempt from all dues and fines and shall be entitled to all the privileges enjoyed by active members in good standing.

ARTICLE IV.

OF THE OFFICERS.

SECTION 1. The officers of this Society shall be a President, four Vice-Presidents, a Corresponding and Recording Secretary and a Treasurer.

SEC. 2. They shall be elected by ballot, on the afternoon of the second day of the meeting, a plurality of votes cast being sufficient for election, and shall serve for one year, except the Secretary and Treasurer, who may serve three years, or until his successor is elected.

SEC. 3. Any nominee for the office of President shall have been an active member of the Society for five years, including the year of his election, shall have attended two or three meetings immediately preceding his nomination, including the meeting at which he is nominated ; and shall be a member in good standing at the time of his nomination.

ARTICLE V.

DUTIES OF THE OFFICERS.

SECTION 1. The President shall preside at the meetings, preserve order and perform such other duties as pertain to his office. He shall not be eligible for a second term.

SEC. 2. The Vice-Presidents, in the order of their rank, shall assist the President in the performance of his duties, and during his absence, or at his request, shall officiate in his place. They shall not be eligible to two terms in succession.

SEC. 3. The Corresponding and Recording Secretary shall conduct the correspondence of the Society, and shall be the custodian of all papers belonging to the Society, except such as appertain to the Treasurer. He shall keep correct minutes of the proceedings of the Society, and shall place them in the hands of the Publication Committee within thirty days after the adjournment of the Society. He shall advertise in two of the leading papers of the State a month in advance all meetings of the Society ; and shall, at the same time, mail to each member a notice of the time and place of the meeting, and shall perform all such other duties as usually appertain to his office. He shall receive such compensation as the Society may, from year to year, agree upon.

SEC. 4. The Treasurer shall receive all moneys belonging to the Society, and disburse them as directed, preserving vouchers for the same. He shall present annually a statement of the finances of the Society, which shall be referred to a committee of three members, who shall audit the same and report to the Society. He shall receive such compensation as the Society may, from year to year, agree upon.

ARTICLE VI.

OF THE BOARD OF MEDICAL EXAMINERS.

SECTION 1. The members of the Board of Medical Examiners shall be elected by ballot for a term of six years, a majority of the votes cast being necessary to a choice. The election shall be held at 10 o'clock a. m., on the second day of the annual meeting, and the balloting shall continue until the entire number of seven are elected.

NOTE.—In order to accomplish the change from the present method of electing a portion of the Board every two years to that of electing the whole number at one time without curtailing the term of office of those already elected, it is decreed that the two members to be elected in 1898 be elected for four (4) years, and the two members to be elected in 1900, for two (2)

years, after which this note having served its purpose shall be considered as repealed without further action on the part of the Society.

SEC. 2. A vacancy occurring from any cause other than expiration of term of office, shall be filled by the Board or a quorum therof.

ARTICLE VII.

OF COMMITTEES AND THEIR DUTIES.

SECTION 1. A committe of three members to be known as the Committee on Credentials shall be appointed by the President at the morning session of the first day of each meeting. Their duty shall be to investigate the character and standing of all applicants for membership in the Society, and receive the credentials of any delegates from other State or District Societies, reporting to the Society the names of such physicians as they think proper. They may ask for instructions from the Society in any doubtful case. The report shall be in order at any hour during the session.

SEC. 2. A Committee on Finance, to consist of three members, shall be appointed by the President at the morning session of the first day of each meeting. They shall examine the accounts of the Treasurer and report to the Society, making suggestions as to the amount of assessments for the coming year, the remuneration of the Secretary and the Treasurer and such other suggestions concerning the finances of the Society as they may think proper.

SEC. 3. A Committee on nominations, to consist of five members, shall be appointed by the President at the morning session of the second day of each meeting. They shall nominate an Orator, an Essayist, a Leader of Debate, a Committee on Publication, an Obituary Committee, Delegates to the American Medical Association, the Virginia Medical Association, the South Carolina Medical Association, and such other associations as the Society may determine, all to serve one year; also a Board of Censors, to consist of three members and to serve three years.

SEC. 4. The Board of Censors shall investigate the professional status of any member of the Society which shall be called in question and presented to them by charges and specifications.

Upon the presentation of such charges and specifications they shall organize a medical court, before which the case shall be tried: *Provided*, however, that such Board of Censors shall be empowered to reconcile differences between members before going into a trial of the case. Should a case come to trial they shall make a report of their investigation to the Society, with such recommendation as they deem necessary and proper.

ARTICLE VIII.

OF THE SECTIONS AND VOLUNTARY COMMUNICATIONS.

SECTION 1. The newly installed President shall, at the last session of each meeting, appoint a member to serve as Chairman of each of the following sections, to-wit: Anatomy and Surgery, Therapeutics and Practice of Medicine, Physiology and Materia Medica, Obstetrics, Gynecology, Medical Jurisprudence and State Medicine, Pathology and Microscopy.

SEC. 2. At any time after the meeting the Chairman of each section may appoint three such members as he may select as his assistants to work up such items as he may designate, confining himself to the general advancement in his section.

SEC. 3. The Chairman of sections shall send into the Secretary, not later than thirty days previous to each meeting of the Society, the titles of papers to be presented by themselves and their assistants to be used by the Secretary in making a programme for the meeting.

SEC. 4. No paper shall be read before the Society unless the author be present, unless his absence be due to some unavoidable circumstances. A paper presented by proxy may be referred to the Committee on Publication.

SEC. 5. No paper shall be referred to the Committee on Publication until it has been placed in the hands of the Secretary; and the Secretary shall not return any paper accepted by the Society without the consent of the Society, and then he shall take a receipt for the same.

SEC. 6. No paper shall be received by or read before this Society that has been presented to any other Society, or that has been offered for publication in any journal; and in the case of any paper accepted the author is supposed to have invested with the Society all rights to its ownership.

SEC. 7. No paper shall be published in the Transactions of this Society unless approved by the Committe on Publication; and any paper rejected by said committee shall be returned to the author through the Secretary of the Society.

SEC. 8. It is to be understood that the Society is not to be considered as endorsing all the views and opinions advanced by the authors of papers published in the Transactions of the Society.

ARTICLE IX.

OF THE FUNDS.

SECTION 1. Funds for defraying the expenses of the Society shall be raised by annual assessments on the active members.

SEC. 2. Each active member shall, after being duly elected and signing the Constitution, pay the sum of five dollars as an admission fee, and be subject to the annual assessment of the Society, except for the year of his admission.

SEC. 3. Should an active member fail to pay the annual assessment two years in succession, he shall be notified by the Treasurer of his deliquency, and if, after this notice, he does not pay his arrearage within sixty days, the Treasurer shall send his name to the Secretary and the member shall not be entitled to receive the Transactions until all dues are paid.

SEC. 4. Should a member be in arrears for four years and fail to pay after due notice from the Treasurer, his name shall be dropped. *Provided*, he may be re-instated at any meeting after endorsement by the Committee on Credentials, and on the payment of five dollars; and so retain his place on the roll as formerly. But this payment shall not entitle the member to receive the volumes of the Transactions that he has forfeited.

ARTICLE X.

MEETINGS OF THE SOCIETY.

The Society shall hold its meetings annually. The time and place of meeting shall be determined for each succeeding year by a vote of the Society.

ARTICLE XI.

OF THE CODE OF ETHICS.

The Society adopts, as a part of its regulations, that part of the Code of Ethics of the American Medical Association which is published by its order.

ARTICLE XII.

PROVISION FOR AMENDMENTS.

Any proposition for amending this Constitution shall be presented in writing and shall lie over to be acted upon at the succeeding meeting of the Society. If it receives a majority of the votes cast it shall be adopted.

BY-LAWS.

OF THE ORDER OF BUSINESS.

1. The President, or, in his absence, one of the Vice-Presidents in the order of their rank, shall call the Society to order, or in the absence of all these officers a presiding officer shall be chosen by a majority of the members present.

2. The appointment of a Committee on Credentials and the Committee on Finance.

3. Report of committee on Credentials.

4. Roll call.

5. Reading of the President's Message.

6. Any business requiring early attention may, by permission, be introduced.

7. Correspondence shall be read by the Secretary.

8. Written communications upon medical subjects may be read and discussed. This shall include reports from sections as arranged each year by programme.

9. Oral communications may be read and discussed.

10. Election of officers.

11. The selection of a place for the next annual meeting of the Society.

12. Unfinished business.

13. Adjournment.

CODE OF MEDICAL ETHICS.

OF THE DUTIES OF PHYSICIANS TO THEIR PATIENTS, AND OF THE OBLIGATIONS OF PATIENTS TO THEIR PHYSICIANS.

ARTICLE I.

DUTIES OF PHYSICIANS TO THEIR PATIENTS.

SECTION 1. A physician should not only be ever ready to obey the calls of the sick, but his mind ought also to be imbued with the greatness of his mission, and the responsibility he habitually incurs in its discharge. These obligations are the more deep and enduring because there is no tribunal other than his own conscience to adjudge penalties for carelessness or neglect. Physicians should, therefore, minister to the sick, with due impression of the importance of their office, reflecting that the ease, the health and the lives of those committed to their charge depend on their skill, attention and fidelity. They should study, also, in their deportment, so to unite tenderness with firmness and condescension with authority, as to inspire the minds of their patients with gratitude, respect and confidence.

SEC 2. Every case committed to the charge of a physician should be treated with attention, steadiness and humanity. Reasonable indulgence should be granted to the mental imbecility and caprices of the sick. Secrecy and delicacy, when required by peculiar circumstances, should be strictly observed, and the familiar intercourse to which physicians are admitted in their professional visits, should be used with discretion, and with the most scrupulous regard to fidelity and honor. The obligation of secrecy extends beyond the period of professional services; none of the privacies of personal and domestic life, no infirmity of dis-

position or flaw of character observed during professional attendance should ever be divulged by the physician except when he is imperatively required to do so. The force and necessity of this obligation are indeed so great that professional men have, under certain circumstances, been protected in their observance of secrecy by courts of justice.

SEC. 3. Frequent visits to the sick are in general requisite, since they enable the physician to arrive at a more perfect knowledge of the disease—to meet promptly every change which may occur, and also tend to preserve the confidence of the patient. But unnecessary visits are to be avoided, as they give useless anxiety to the patient, tend to diminish the authority of the physician, and render him liable to be suspected of interested motives.

SEC. 4. A physician should not be forward to make gloomy prognostications, because they savor of empiricism, by magnifying the importance of his services in the treatment or cure of the disease. But he should not fail, on proper occasions, to give to the friends of the patient timely notice of danger when it really occurs, and even to the patient himself, if absolutely necessary. This office, however, is so peculiarly alarming when executed by him that it ought to be declined whenever it can be assigned to any other person of sufficient judgment and delicacy. For the physician should be the minister of hope and comfort to the sick; that, by such cordials to the drooping spirit, he may smooth the bed of death, revive expiring life, and counteract the depressing influence of those maladies which often disturb the tranquility of the most resigned in their last moments. The life of a sick person can be shortened, not only by the acts, but also by the words or manner of a physician. It is, therefore, a sacred duty to guard himself carefully in this respect, and to avoid all things which have a tendency to discourage the patient and to depress his spirits.

SEC. 5. A physician ought not to abandon a patient because the case is thought incurable; for his attendance may continue to be highly useful to the patient, and comforting to the relatives around him, even in the last period of fatal malady, by alleviating pain and other symptoms, and by soothing mental anguish. To decline attendance upon such circumstances would be sacrificing to fanciful delicacy and mistaken liberality, that

moral duty which is independent of, and far superior to, all pecuniary consideration.

SEC. 6. Consultations should be promoted in difficult or protracted cases, as they give rise to confidence, energy and more enlarged views in practice.

SEC. 7. The opportunity which a physician not unfrequently enjoys of promoting and strengthening the good resolutions of his patients, ought never to be neglected. His counsels, or even remonstrances will give satisfaction, not offense, if they be proffered with politeness, and evince genuine love of virtue, accompanied by a sincere interest in the welfare of the person to whom they are addressed.

ARTICLE II.

OBLIGATIONS OF PATIENTS TO THEIR PHYSICIANS.

SECTION 1. The members of the medical profession, upon whom is enjoined the performance of so many important and arduous duties toward the community, and who are required to make so many sacrifices of comfort, ease and health for the welfare of those who avail themselves of their services, certainly have a right to expect and require that their patients should entertain a just sense of the duties which they owe to their medical attendants.

SEC. 2. The first duty of a patient is to select as his medical adviser one who has received a regular professional education. In no trade or occupation do mankind rely on the skill of an untaught artist, and in medicine, confessedly the most difficult and intricate of the sciences, the world ought not to suppose that knowledge is intuitive.

SEC. 3. Patients should prefer a physician whose habits of life are regular, and who is not devoted to company, pleasure or any pursuit incompatable with his professional obligations. A patient should also confide the care of himself and family, as much as possible, to one physician; for a medical man who has become acquainted with the peculiarities of constitution, habits and predispositions of those he atttends, is more likely to be successful in his treatment than one who does not possess that knowledge.

A patient who has thus selected his physician should always

apply for advice in what may appear to him trivial cases, for the most fatal results often supervene on the slightest accidents. It is of still more importance that he should apply for assistance in the forming stage of violent diseases; it is to a neglect of this precept that medicine owes much of the uncertainty and imperfection with which it has been reproached.

SEC. 4. Patients should faithfully and unreservedly communicate to their physician the supposed cause of their disease. This is the more important, as many diseases of a mental origin simulate those depending on external causes and yet are only to be cured by ministering to the mind diseased. A patient should never be afraid of thus making his physician his friend and adviser; he should always bear in mind that a medical man is under the strongest obligations of secrecy. Even the female sex should never allow feelings of shame or delicacy to prevent their disclosing the seat, symptoms and causes of complaints peculiar to them. However commendable a modest reserve may be in the common occurrences of life, its strict observance in medicine is often attended with the most serious consequences, and a patient may sink under a painful and loathsome disease, which might have been readily prevented had timely intimation been given to the physician.

SEC. 5. A patient should never weary his physician with a tedious detail of events or matters not appertaining to his disease. Even as relates to his actual symptoms, he will convey much more real information by giving clear answers to interrogatories than by the most minute account of his own framing. Neither should he obtrude upon his physician the details of his business nor the history of his family concerns.

SEC. 6. The obedience of a patient to the prescriptions of his physician should be prompt and explicit. He should never permit his own crude opinions as to their fitness to influence his attention to them. A failure in one particular may render an otherwise judicious treatment dangerous, and even fatal. This remark is equally applicable to diet, drink and exercise. As patients become convalescent, they are very apt to suppose that the rules prescribed for them may be disregarded, and the consequence, but too often, is a relapse. Patients should never allow themselves to be persuaded to take any medicine whatever that may be recommended to them by self-constituted doctors

and doctresses who are so frequently met with, and who pretend to possess infallible remedies for the cure of every disease. However simple some of their prescriptions may appear to be, it often happens that they are productive of much mischief, and in all cases they are injurious by contravening the plan of treatment adopted by the physician.

SEC. 7. A patient should, if possible, avoid even the friendly visits of a physician who is not attending him—and when he does receive them, he should never converse on the subject of his disease, as an observation may be made, without any intention of interference, which may destroy his confidence in the course he is pursuing, and induce him to neglect the directions prescribed to him. A patient should never send for a consulting physician without the express consent of his own medical attendant. It is of great importance that physicians should act in concert; for, although their modes of treatment may be attended with equal success when applied singly, yet conjointly they are very likely to be productive of disastrous results.

SEC. 8. When a patient wishes to dismiss his physician, justice and common courtesy require that he should declare his reasons for so doing.

SEC. 9. Patients should always, when practicable, send for their physician in the morning, before his usual hour of going out; for by being early aware of the visits he has to pay during the day, the physician is able to apportion his time in such a manner as to prevent an interference of engagements. Patients should also avoid calling on their medical advisers unnecessarily during the hours devoted to meals or sleep. They should always be in readiness to receive the visits of their physician, as the detention of a few minutes is often of serious inconvenience to him.

SEC. 10. A patient should after his recovery, entertain a just and endearing sense of the value of the services rendered by his physician; for these are of such a character that no mere pecuniary acknowledgement can repay or cancel them.

OF THE DUTIES OF PHYSICIANS TO EACH OTHER AND THE PROFESSION AT LARGE.

ARTICLE I.

DUTIES FOR THE SUPPORT OF PROFESSIONAL CHARACTER.

SECTION 1. Every individual, on entering the profession, as he becomes thereby entitled to all its privileges and immunities, incurs an obligation to extend his best abilities to maintain its dignity and honor, to exact its standing and to extend the bounds of its usefulness. He should, therefore, observe strictly such laws as are instituted for the government of its members; should avoid all contumelious and sarcastic remarks relative to the faculty as a body; and while, by unwearied diligence he resorts to every honorable means of enriching the science, he should entertain a due respect for his seniors, who have, by their labors, brought it to the elevated condition in which he finds it.

SEC. 2. It is not in accord with the interest of the public or the honor of the profession that any physician or medical teacher should examine or sign diplomas or certificates of proficiency for, or otherwise be specially concerned with, the graduation of persons whom they have good reason to believe intend to support and practice any exclusive and irregular system of medicine.

SEC. 3. There is no profession from the members of which greater purity of character and a higher standard of moral excellence are required than the medical, and to attain such eminence is a duty every physician owes alike to his profession and to his patients. It is due to the latter, as without it he can not command their respect and confidence, and to both because no scientific attainments can compensate for the want of correct moral principles. It is also incumbent upon the faculty to be temperate in all things, for the practice of physic requires the unremitting exercise of a clear and vigorous understanding: and, on emergencies, for which no professional man should be unprepared, a steady hand, an acute eye and an unclouded head may be essential to the well-being, and even to the life, of a fellow being.

SEC. 4. It is derogatory to the dignity of the profession to resort to public advertisements, or private cards, or hand-bills,

inviting the attention of individuals affected with peculiar diseases—publicly offering advice and medicine to the poor gratis, or promising radical cures, or to publish cases and operations in the daily prints, or suffer such publications to be made, to invite laymen to be present at operations, to boast of cures and remedies, to adduce certificates of skill and success, or to perform any other similar acts. These are the ordinary practices of empirics, and are highly reprehensible in a regular physician.

SEC. 5. Equally derogatory to professional character is it for a physician to hold a patent for any surgical instrument or medicine; or to dispense a secret nostrum, whether it be the composition or exclusive property of himself or of others. For, if such nostrum be of real efficacy, any concealment regarding it is inconsistent with beneficence and professional liberality; and if mystery alone gives it value and importance, such craft implies either disgraceful ignorance or fraudulent avarice. It is also reprehensible for physicians to give certificates attesting the efficacy of patent medicines, or in any way to promote the use of them.

ARTICLE II.

PROFESSIONAL SERVICES OF PHYSICIANS TO EACH OTHER.

SECTION 1. All practitioners of medicine, their wives and their children, while under paternal care, are entitled to the gratuitous services of any one or more of the faculty residing near them whose assistance may be desired. A physician afflicted with disease is usually an incompetent judge of his own case; and the natural anxiety and solicitude which he experiences at the sickness of a wife, a child, or any one who, by the ties of consanguinity, is rendered peculiarly dear to him, tend to obscure his judgment and produce timidity and irresolution in his practice. Under such circumstances medical men are peculiarly dependent upon each other, and kind offices and professional aid should always be cheerfully and gratuitously afforded. Visits ought not, however, to be obtruded officiously; as such unasked civility may give rise to embarrassment, or interfere with that choice on which confidence depends. But, if a distant member of the faculty, whose circumstances are affluent, request attendance, and an honorarium be offered, it should

not be declined; for no pecuniary obligation ought to be imposed, which the party receiving it would wish not to incur.

ARTICLE III.

OF THE DUTIES OF PHYSICIANS AS RESPECT VARIOUS OFFICES.

SECTION 1. The affairs of life, the pursuit of health, and the various accidents and contingencies to which a medical man is peculiarly exposed, sometimes require him temporarily to withdraw from his duties to his patients, and to request some of his professional brethren to officiate for him. Compliance with this request is an act of courtesy which should always be performed with utmost consideration for the interest and character of the family physician, and when exercised for a short period all the pecuniary obligations for such service should be awarded to him. But if a member of the profession neglect his business in quest of pleasure and amusement, he cannot be considered as entitled to the advantages of the frequent long-continued exercises of this fraternal courtesy, without awarding to the physician who officiates the fees arising from the discharge of his professional duties.

SEC. 2. In obstetrical and important surgical cases, which give rise to unusual fatigue, anxiety and responsibility, it is just that the fees accruing therefrom should be awarded to the physician who officiates.

ARTICLE IV.

OF THE DUTIES OF PHYSICIANS AS REGARD CONSULTATIONS.

SECTION 1. A regular medical education furnishes the only presumptive evidence of professional abilities and requirements, and ought to be the only acknowledged right of an individual to the exercise and honors of his profession. Nevertheless, as in consultations the good of the patient is the sole object in view, and this is often dependent on personal confidence, no intelligent regular practitioner, who has a license to practice from some medical board of known acknowledged responsibility, recognized by this Association, and who is in good moral and professional standing in the place in which he resides, should be fastidiously excluded from fellowship, or his aid refused in consultation, when

it is requested by the patient. But no one can be considered as a regular practitioner or a fit associate in consultation, whose practice is based on an exclusive dogma, to the rejection of the accumulated experience of the profession, and the aids actually furnished by anatomy, physiology, pathology and organic chemistry.

SEC. 2. In consultations no rivalship or jealousy should be indulged; candor, probity and all due respect should be exercised toward the physician having charge of the case.

SEC. 3. In consultations the attending physician should be the first to propose the necessary questions to the sick, after which the consulting physician should have the opportunity to make such further inquiries of the patient as may be necessary to satisfy him of the true character of the case. Both physicians should then retire to a private place for deliberation; and the one first in attendance should communicate the directions agreed upon to the patient or his friends, as well as any opinions which it may be thought proper to express. But no statement or discussion of it should take place before the patient or his friends, except in the presence of the faculty attending, and by their common consent; and no opinions or prognostications should be delivered which are not the result of previous deliberation and concurrence.

SEC. 4. In consultations the physician in attendance should deliver his opinion first, and when there are several consulting, they should deliver their opinions in the order in which they have been called in. No decision, however, should restrain the attending physician from making such variations in the mode of treatment as any subsequent unexpected change in the character of the case may demand. But such variations, and the reasons for it, ought to be carefully detailed at the next meeting in consultation. The same privilege belongs also to the consulting physcian if he is sent for in an emergency when the regular attendant is out of the way, and similar explanations must be made by him at the next consultation.

SEC. 5. The utmost punctuality should be observed in the visits of physicians when they are to hold consultations together, and this is greatly practicable, for society has beeen considerate enough to allow the plea of a professional engagement to take precedence of all others, and to be an ample reason for the relin-

quishment of any present occupation. But as professional engagements may sometimes interfere and delay one of the parties, the physician who first arrives should wait for his associate a reasonable period, after which the consultation should be considered as postponed to a new appointment. If it be the attending physician who is present he will, of course, see the patient and prescribe ; but if it be the consulting one, he should retire except in case of emergency, or when he has been called from a considerable distance, in which latter case he may examine the patient, and give his opinion in writing, and under seal, to be delivered to his associate.

SEC. 6. In consultations theoretical discussions should be avoided as occasioning perplexity and loss of time. For there may be much deversity of opinion concerning speculative points, with perfect agreement in those modes of practice which are founded, not on hypothesis, but on experience and observation.

SEC. 7. All discussions in consultations should be held as secret and confidential. Neither by words or manner should any of the parties to a consultation assert or insinuate that any part of the treatment pursued did not receive his assent. The responsibility must be equally divided between the medical attendants—they must equally share the credit of success as well as the blame of failure.

SEC. 8. Should an irreconcilable diversity of opinion occur when several physicians are called upon to consult together, the opinion of the majority should be considered as decisive ; but if the number be equal on each side, then the decision should rest with the attending physician. It may, moreover, sometimes happen that two physicians cannot agree in their views of the nature of a case, and the treatment to be pursued. This is a circumstance much to be deplored, and should always be avoided, if possible, by mutual concession, as far as they can be justified by a conscientious regard for the dictates of judgment. But in the event of its occurrence a third physician should, if practicable, be called to act as umpire; and, if circumstances prevent the adoption of this course, it must be left to the patient to select the physician in whom he is most willing to confide. But, as every physician relies upon the rectitude of his udgment, he should, when left in the minority, politely and consistently retire from any further deliberation in the consultation, or participation in the management of the case.

SEC. 9. As circumstances sometimes occur to render a special consultation desirable, when the continued attendance of two physicians might be objectionable to the patient, the member of the faculty whose assistance is required in such cases should sedulously guard against all future unsolicited attendance. As such consultations require an extraordinary portion of both time and attention, at least a double honorarium may be reasonably expected.

SEC. 10. A physician who is called upon to consult should observe the most honorable and scrupulous regard for the character and standing of the practitioner in attendance; the practice of the latter, if necessary, should be justified, as far as can be, consistently with a conscientious regard for truth, and no hint or insinuation should be thrown out which could impair the confidence reposed in him, or affect his reputation. The consulting physician should also carefully refrain from any of those extraordinary attentions or assiduities which are too often practiced by the dishonest for the base purpose of gaining applause, or ingratiating themselves into the favor of families and individuals.

ARTICLE V.

DUTIES OF PHYSICIANS IN CASE OF INTERFERENCE.

SECTION 1. Medicine is a liberal profession, and those admitted into its ranks should found their expectations of practice upon the extent of their qualifications, not on intrigue or artifice.

SEC. 2. A physician, in his intercourse with a patient under the care of another practitioner, should observe the strictest caution and reserve. No meddling inquiries should be made; no disingenuous hints given relative to the nature and treatment of his disorder; nor any course of conduct pursued that may directly or indirectly tend to diminish the trust reposed in the physician employed.

SEC. 3. The same circumspection and reserve should be observed when, from motives of business or friendship, a physician is prompted to visit an individual who is under the direction of another practitioner. Indeed, such visits should be avoided, except under peculiar circumstances; and when they

are made no particular inquiries should be instituted relative to the nature of his disease, or the remedies employed, but the topics of conversation should be as foreign to the case as circumstances will admit,

SEC. 4. A physician ought not to take charge of or prescribe for a patient who has recently been under the care of another member of the faculty in the same illness, except in cases of sudden emergency, or in consultation with the physician previously in attendance, or when the latter has relinquished the case, or been regularly notified that his services are no longer desired. Under such circumstances, no unjust and illiberal insinuation should be thrown out in relation to the conduct or practice previously pursued, which should be justified as far as candor and regard for truth and probity will permit; for it often happens that patients become dissatisfied when they do not experience immediate relief, and, as many diseases are unusually protracted, the want of success, in the first stage of treatment, affords no evidence of a lack of professional knowledge and skill.

SEC, 5. When a physician is called to an urgent case, because the family attendant is not at hand, he ought, unless his assistance in consultation be desired, to resign the care of the patient to the latter immediately on his arrival.

SEC. 6. It often happens in case of sudden illness, or of recent accidents and injuries, owing to the alarm and anxiety of friends, that a number of physicians are simultaneously sent for. Under these circumstances, courtesy should assign the patient to the first who arrives, who should select from those present any additional assistance that he may deem necessary. In all such cases, however, the practitioner who officiates should request the family physician, if there be one, to be called, and, unless his further attendance be requested, should resign the case to the latter on his arrival.

SEC. 7 When a physician is called to the patient of another practitioner, in consequence of the sickness or absence of the latter, he ought, on his return or recovery of the regular attendant, and with the consent of the patient, to surrender the case.

[The expression, "patient of another practitioner," is understood to mean a patient who may have been under the charge of another practitioner at the time of the attack of sickness, or departure from home of the latter, or who may have called for his

attendance during his absence or sickness, or in any other manner given it to be understood that he regarded the said physician as his regular medical attendant.]

SEC. 8. A physician, when visiting a sick person in the country, may be desired to see a neighboring patient, who is under the regular direction of another physician, in consequence of some sudden change or aggravation of symptoms. The conduct to be pursued on such an occasion is to give advice adapted to present circumstances; to interfere no further than is absolutely necessary with the general plan of treatment; to assume no further direction unless it be expressly desired; and, in the last case, to request an immediate consultation with the practitioner previously employed.

SEC. 9. A wealthy physician should not give advice gratis to the affluent; because his doing so is an injury to his professional brethren. The office of a physician can never be supported as an exclusive beneficent one; and it is defrauding, in some degree, the common funds for its support, when fees are dispensed with which might justly be claimed.

SEC. 10. When a physician who has been engaged to attend a case of midwifery is absent, and another is sent for, if delivery is accomplished during the attendance of the later, he is entitled to the fee, but should resign the patient to the practitioner first engaged.

ARTICLE VI.

OF DIFFERENCES BETWEEN PHYSICIANS.

SECTION 1. Diversity of opinion and opposition of interest may, in the medical, as in other professions, sometimes occasion controversy and even contention. Whenever such cases unfortunately occur, and cannot be immediately terminated, they should be referred to the arbitration of a sufficient number of physicians or a court-medical.

SEC. 2. As a peculiar reserve must be maintained by physicians towards the public in regard to professional matters, and as there exist numerous points in medical ethics and etiquette through which the feelings of the medical attendants are assailed in their intercourse with each other, and which cannot be understood or appreciated by general society, neither the subject-

matter of such differences nor the adjudication of the arbitrators should be made public, as publicity in a case of this nature may be personally injurious to the individuals concerned, and can hardly fail to bring discredit on the faculty.

ARTICLE VII.

OF PECUNIARY ACKNOWLEDGEMENTS.

SECTION 1. Some general rules should be adopted by the faculty, in every town or district, relative to pecuniary acknowledgements from their patients; and it should be deemed a point of honor to adhere to these rules with as much uniformity as varying circumstances will admit.

OF THE DUTIES OF THE PROFESSION TO THE PUBLIC, AND OF THE OBLIGATIONS OF THE PUBLIC TO THE PROFESSION.

ARTICLE I.

DUTIES OF THE PROFESSION TO THE PUBLIC.

SECTION 1. As good citizens, it is the duty of physicians to be ever vigilant for the welfare of the community and to bear their part in sustaining its institutions and burdens; they should also be ever ready to give counsel to the public in relation to matters especially appertaining to their profession, as on subjects of medical police, public hygiene and legal medicine. It is their province to enlighten the public in regard to quarantine regulations; the location, arrangement and dietaries of hospitals, asylums, schools, prisons and similar institutions in relation to the medical police of towns, as drainage, ventilation, etc.; and in regard to measures for the prevention of epidemic and contagious diseases; and when the pestilence prevails it is their duty to face the danger and to continue their labors for the alleviation of the suffering, even at the jeopardy of their own lives.

SEC. 2. Medical men should always be ready, when called on by the legally constituted authorities, to enlighten coroners' inquests and courts of justice on subjects strictly medical—such as involve questions relating to sanity, legitimacy, murder by poisons or other violent means, and in regard to the various other

subjects embraced in the science of Medical Jurisprudence. But in these cases, and especially where they are required to make a post mortem examination, it is just, in consequence of the time, labor and skill required and the responsibility and risk they incur, that the public should award them a proper honorarium.

SEC. 3. There is no profession by the members of which elemosynary services are more liberally dispensed than the medical, but justice requires that some limits should be placed to the performance of such good offices. Poverty, professional brotherhood and certain of the public duties referred to in the first section of this article, should always be recognized as presenting valid claims for gratuitous services ; but neither institutions endowed by the public or by rich individuals, societies for mutual benefit, for the insurance of lives or for analogous purposes, nor any profession or occupation, can be admitted to possess such privilege. Nor can it be justly expected of physicians to furnish certificates of inability to serve on juries, to perform military duty, or to testify to the state of health of persons wishing to insure their lives, to obtain pensions, or the like, without a pecuniary acknowledgement. But to individuals in indigent circumstances such professional services should always be cheerfully and freely accorded.

SEC. 4. It is the duty of physicians who are frequent witnesses of the enormities committed by quackery and the injury to health, and even destruction of life caused by the use of quack medicines, to enlighten the public on these subjects, to expose the injuries sustained by the unwary from the devices and pretentions of artful empirics and imposters. Physicians ought to use all the influence which they may possess, as professors in colleges of pharmacy, and by exercising their option in regard to the shops to which their prescriptions shall be sent, to discourage druggists and apothecaries from vending quack or secret medicines, or from being in any way engaged in their manufacture and sale.

ARTICLE II.

OBLIGATIONS OF THE PUBLIC TO THE PHYSICIAN.

SECTION 1. The benefits accruing to the public, directly and indirectly, from the active and unwearied beneficence of the

profession, are so numerous and important, that physicians are justly entitled to the utmost consideration and respect from the community. The public ought likewise to entertain a just appreciation of medical qualifications; to make a proper discrimination between true science and the assumptions of ignorance and empiricism; to afford every encouragement and facility for the acquisition of medical education—and no longer to allow the statute-books to exhibit the anomaly of exacting knowledge from physicians, under a liability to heavy penalties, and of making them obnoxious to punishment for resorting to the only means of obtaining it.

LIST OF MEMBERS.

[IN THE ORDER IN WHICH THEY SIGNED THE CONSTITUTION.]

Members will confer a great favor if they will look for any errors or omissions, changes, removals, or deaths in this list and mail the Secretary a card of correction. With the coöperation of the members it is possible to keep the list up to date.

1869	Dr.	H. T. Bahnson	Salem.
1870	"	W. W. Lane	Wilmington.
70	"	Wm. J. Love	Wilmington.
70	"	Jas. McKee	Raleigh.
70	"	Willis Alston	Littleton.
70	"	W. J. H. Bellamy	Wilmington.
1871	"	W. I. Royster	Raleigh.
71	"	Geo. Gillett Thomas	Wilmington.
1872	"	Francis Duffy	Newbern.
1873	"	A. G. Carr	Durham.
73	"	J. F. Miller	Goldsboro.
73	"	J. M. Hadley	LaGrange.
73	"	J. W. Vick	Selma.
73	"	P. L. Murphy	Morganton.
1874	"	Jos. Graham	Charlotte.
74	"	W. H. Lilly	Concord.
74	"	J. H. McMullen	Edenton.
74	"	T. D. Haigh	Fayetteville.
1875	"	L. J. Picot	Littleton.
75	"	D. W. Bulluck	Wilmington.
75	"	W. H. Whitehead	Rocky Mount.
75	"	R. H. Speight	Wrendale.
1876	"	W. C. McDuffie	Fayetteville.
76	"	Henry Tull	Kinston.
76	"	J. W. McNeill	Fayetteville.
76	"	J. D. McMillan	Lumberton.
1877	"	Geo. W. Long	Graham.
77	"	Geo. W. Graham	Charlotte.
77	"	N. S. Sievers	Salem.
77	"	Richard H. Lewis	Raleigh.
77	"	J. F. Harrell	Whiteville.

1877	Dr.	L. H. Hill	Germanton.
1878	"	R. J. Noble	Selma.
78	"	W. H. H. Cobb	Goldsboro.
78	"	J. H. Tucker	Henderson.
78	"	E. H. Hornaday	Willow Green.
78	"	I. W. Faison	Charlotte.
1879	"	I. G. Ector.	Friendship.
79	"	J. M. Covington	Rockingham.
79	"	W. P. Beall	Greensboro.
79	"	A. D. McDonald	Wilmington.
79	"	S. B. Jones	Charlotte.
79	"	J. J. Cox	High Point.
79	"	D. M. Prince	Laurinburg.
79	"	J. A. Sexton	Raleigh.
79	"	John C. Walton	Reidsville.
79	"	R. A. Hargrave	Robersonville.
79	"	Julian M. Baker	Tarboro.
79	"	Thos. E. Anderson	Statesville.
1880	"	J. M. Stansill	Rockingham.
80	"	Thomas Hill	Goldsboro.
80	"	E. de la R. King	Beaufort.
80	"	J. C. Shepard	Wilmington.
80	"	W. C. Galloway	Wilmington.
80	"	T. S. Burbank	Wilmington.
80	"	R. W. Thomas	Thomasville.
80	"	C. M. Poole	Craven.
80	"	J. L. Nicholson	Richlands.
80	"	A. W. Knox	Raleigh.
80	"	John Whitehead	Salisbury.
80	"	S. J. Montague	Winston.
80	"	W. P. Mercer	Elm City.
80	"	L. W. Hunter	Sardis.
1881	"	R. F. Whiteside	Hickory.
81	"	J. A. Reagan	Weaverville.
81	"	G. W. Fletcher	Fletchers.
81	"	M. H. Fletcher	Asheville.
81	"	T. M. Jordan	Hookerton.
81	"	S. H. Lyle	Franklin.
81	"	R. L. Payne	Norfolk, Va.
81	"	T. F. Meisenheimer	Morven.
81	"	T. F. Pharr	Concord.
81	"	H. B. Weaver	Asheville.
81	"	A. J. Battle	Wadesboro.
81	"	J. H. Williams	Asheville.
1882	"	J. R. Irwin	Charlotte.
82	"	A. R. Wilson	Greensboro.
82	"	K. P. Battle	Raleigh.
82	"	R. S. Young	Concord.

1882	Dr.	R. A. Smith	Goldsboro.
82	"	C. A. Meisenheimer	Charlotte.
1883	"	W. W. Faison	Goldsboro.
83	"	W. O. McDowell	Scotland Neck.
83	"	N. H. Street	Newbern.
83	"	J. A. Stevens	Clinton.
83	"	I. M. Taylor	Morganton.
83	"	J. M. Hodges	LaGrange.
83	"	W. L. Hudson	Dunn.
83	"	F. R. Harriss	Henderson.
83	"	G. C. Edwards	Hookerton.
83	"	E. M. Summerell	Mill Bridge.
83	"	N. M. McLean	Gibson Station.
83	"	B. L. Long	Hamilton.
83	"	N. P. Boddie	Durham.
1884	"	W. G. Freeman	Murfreesboro.
84	"	W. C. Whitfield	Quinerly.
84	"	J. A. Burroughs	Asheville.
84	"	J. W. Long	Salisbury.
84	"	M. P. Perry	Macon.
84	"	G. J. Robinson	Smithfield.
84	"	M. R. Adams	Statesville.
84	"	G. T. Sikes	Grissom.
84	"	W. B. Pritchard	105 W. 73d St N. Y.
84	"	M. H. Futrell	Conway.
84	"	B. F. McMillan	Plainview.
84	"	J. E. Grimsley	Snow Hill.
84	"	A. M. Herron	Charlotte.
1885	"	L. M. Archey	Concord.
85	"	W. E. Powell	Gastonia.
85	"	F. W. Hughes	Newbern.
85	"	E. W. Pugh	Windsor.
85	"	S. D. Booth	Oxford.
85	"	J. A. Hodges	Richmond, Va.
85	"	Annie L. Alexander	Charlotte.
85	"	J. T. Nicholson	Bath.
85	"	A. D. Cotten	Morrisville.
85	"	A. D. York	Morrisville.
85	"	S. L. Montgomery	Concord.
85	"	T. W. Long	Catawba.
85	"	K. Leggett	Hobgood.
85	"	W. W. Pharr	Newell's.
85	"	J. M. Faison	Faison.
85	"	J. W. McGee	Raleigh.
85	"	H. W. Dorsett	Bethany.
85	"	D. G. Caldwell	Concord.
85	"	J. M. O'Kelly	Williams Mills.
85	"	M. F. Fox	Gilmer's Store.

1885.....Dr. D. T. Tayloe .....Washington.
85..... " Zeno Brown .....Greenville.
85..... " F. W. Ritter.....Moyock.
85 ..... " Mayland Bolton.....Rich Square.
85..... .... " W. E. Turlington .....Benson.
1886..... " G. H. Dodd .....Clayton.
86..... " B. S. Utley .....Holly Springs.
86..... " R. A. Whitaker.....Trenton.
86..... " M. W. Harper.....Dunn.
86..... " H. H. Harriss .....Wake Forest.
86. .... " S. C. McClure ..... Statesville.
86..... " M. E. Robinson .....Goldsboro.
1887..... ... " O. D. King..... .Albemarle.
87..... " W. D. Pemberton.....Monroe.
87..... " A. W. Goodwin .....Raleigh.
87..... " W. H. Bagwell.....Greenville.
87..... ..... " H. W. Lewis .....Jackson.
87..... " D. O'Conoghue.....Charlotte.
87..... " Henry H. Dodson.....Milton.
87..... ..... " S. W. Battle, U. S. N.....Asheville.
87..... " J. F. Beall.....Linwood.
87..... ..... " W. L. Crouse.....Lincolnton.
87..... " Joe Hill.....Lexington.
87..... " J. H. Way.....Waynesville.
87..... " R. H. Stancell.....Margarettesville.
87... ..... " R. A. Patterson.....Aurelian Springs.
87..... " J. McDeArmond.....Mint Hill.
87..... " R. J. Brevard..... ....Charlotte.
87..... " E C. Register.....Charlotte.
87..... " R. W. Tate..... .....Greensboro.
87 ..... " J. D. Croom.....Maxton.
87..... " D. C. Parris.....Hillsboro.
1888..... ..... " J. C. Grady.....Magnolia.
88..... " J. A. Faison.....Raleigh.
88..... " A. McDougald.....Hope Mills.
88..... " W. J. Lumsden.....Elizabeth City.
88..... " G. H. Moran.....Morganton.
88..... " N. B. Herring.....Wilson.
88..... " H. S. Lott.....Winston.
88..... " Jas. W. McGee, Jr.....Raleigh.
88.... ..... " Arch. McKinnon.....Chadbourn.
88..... " Duncan Smith.....Athens.
88..... ..... " S. A. Henly.....Asheboro.
88..... " W. A. Monroe.....Sanford.
88..... " C. B. Woodley.....Kinston.
88..... ..... " W. S. Anderson.....Wilson.
88... ..... " J. G. Broadnax.....Greensboro.
88..... " Duncan Sinclair.....Rowland.

1888	Dr.	J. E. Ashcraft	Monroe.
88	"	C. H. Lewis	Farmers.
88	"	E. B. Goelet	Saluda.
88	"	B. T. Cox	Redalia.
88	"	A. Cheatham	Durham.
88	"	Jenness Morrill	Falkland.
1889	"	J. T. J. Battle	Wadesboro.
89	"	W. V. McCauless	Danbury.
89	"	Oscar McMullan	Elizabeth City.
89	"	Albert Anderson	Wilson.
89	"	W. B. Fearing	Manteo.
1890	"	W. G. Stafford	Burlington.
90	"	J. S. Lafferty	China Grove.
90	"	T. L. Booth	Oxford.
90	"	J. H. Marsh	Fayetteville.
90	"	P. B. Loftin	Grifton.
90	"	R. L. Gibbon	Charlotte.
90	"	W. A. Graham	Charlotte.
90	"	J. L. Ray	Burnsville.
90	"	W. H. Harrell	Williamston.
90	"	J L. Egerton	Hendersonville.
90	"	J. W. White	Wilkesboro.
90	"	E. G. Moore	Elm City.
90	"	J. P. Fearrington	Winston.
90	"	E. R. Michaux	Greensboro.
90	"	E. P. Snipes	Jonesboro.
90	"	E. C. Laird	Hot Springs.
90	"	J. P. Munroe	Davidson.
90	"	R. A. Martin	Roxboro.
90	"	R. D. Jewett	Winston.
1891	"	C. P. Ambler	Asheville.
91	"	R. C. Ellis	Shelby.
91	"	J. B. H. Knight	Williamston.
91	"	J. G. Waldrop	Hendersonville.
91	"	C. Few	Hendersonville.
91	"	W. F. Chenault	Elmwood.
91	"	C. G. Nichols	Roxboro.
91	"	Richard H. Whitehead	Chapel Hill.
91	"	Jos. L. Laxton	Morganton.
91	"	Karl von Ruck	Asheville.
91	"	D. A. Stanton	High Point.
91	"	Jas. A. Turner	High Point.
91	"	H. Longstreet Taylor	St. Paul, Minn.
91	"	J. F. Sanderford	Creedmore.
91	"	D. I Watson	Southport.
91	"	C. Daligny	El Dorado.
91	"	W. E. Headen	Morehead City.
91	"	W. J. Kloutz	Alexander.

1891	Dr.	A. J. Monroe	Jonesboro.
91	"	J. Y. Fitzgerald	Monroe.
91	"	J. A. Watson	Asheville.
91	"	W. H. Wilson	Gastonia.
91	"	H. K. Edgerton	Selma.
91	"	J. T. Reid	Old Fort.
91	"	J. C. Black	Pioneer Mills.
91	"	R. W. Palmer	Gulf.
91	"	W. P. Ivey	Lenoir.
1892	"	J. Alston Nicholson	Washington.
92	"	E. L. Cox	Jacksonville.
92	"	W. J. Harrell	Aulander.
92	"	P. R. Hatch	Youngsville.
92	"	R. W. Mills	Troutman's.
92	"	Russell Bellamy	152 W. 57 St., N.Y.
92	"	A. G. Jones	Walnut Cove.
92	"	Wade H. Atkinson	Washington, D. C.
92	"	G. V. Cate	Taylor's Bridge.
92	"	Silas P. Wright	Wilmington.
92	"	K. A. Blue	Laurinburg.
92	"	H. Johnson	Grifton.
92	"	A. J. Patterson	Liberty.
92	"	F. P. Gates	Manteo.
92	"	W. R. Mayo	Jamesville.
92	"	W. E. Fitch	Savannah, Ga.
92	"	C. B. Ingram	Mt. Gilead.
92	"	T. S. McMullan	Hertford.
92	"	J. B. Shamberger	Star.
92	"	Wm. D. McMillan	Wilmington.
92	"	E. G. Goodman	El Paso.
1893	"	T. B. Williams	Ridgeway.
93	"	G. M. Bell	Wakefield.
93	"	W. B. Bullock	Franklinton.
93	"	T. A. Matthews	Castalia.
93	"	F. H. Seawell	Archer Lodge.
93	"	R. J. Nelson	Robersonville.
93	"	Albert Houck	Lenoir.
93	"	S. Hassell	Plymouth.
93	"	W. R. Galey	Graham.
93	"	J. M. Flippin	Salisbury.
93	"	C. A. Julian	Thomasville.
93	"	Jas. T. Rieves	Julian.
93	"	B. B. Williams	Keyser.
93	"	W. H. Wakefield	Charlotte.
93	"	J. F. Highsmith	Fayetteville.
1893	"	R. J. Grimes	Bethel.
93	"	E. F. Strickland	Bethania.

1893.....Dr. H. C. Williams.....Aberdeen.
93..... " R. A. Moore..... .Durham.
93..... " R. L. Davis.....Bryson City.
93..... " W. H. Nicholson.....Louisburg.
93..... " Robt J. Gill.....Henderson.
93..... " J. G. Blount..... .Washington.
93..... " G. A. Renn.....Raleigh.
93..... " W. K. Hollingsworth.....Mt. Airy.
93..... " J. H. Gibbon.....Philadelphia, Pa.
93..... " M. L. Stevens.....Concord.
93..... " C. N. Roberson..... ...Ascend.
93..... " Josh. Tayloe.....Washington.
1894..... " W. T. Richardson.....Greensboro.
94..... " J. R. Gordon..... .....Jamestown.
94.. ..... " C. O'H. Laughinghouse..Greenville.
94..... " J. R. Hester.....Prospect Hill.
94..... " W. W. McKenzie.....Salisbury.
94..... " W. S. Taylor .....Mt. Airy.
94.... .. .. " R. E. Cox.... .....Fremont.
94..... " J. H. Mease..... .Canton.
94..... " Thos. M. Riddick.....Woodville.
94..... " J. D. Jenkins..... Crisp.
94..... " C. L. Jenkins.....Conetoe.
94..... " C. S. Gilmer.....Greensboro.
94..... " C. H. Lewis.....Farmers.
94..... " L. D. Wharton.....Smithfield.
94..... " B. F. Hallsey.....Roper.
94..... " O. B. Stroud .....Ore Hill.
94 ..... " C. T. Harper.....Wilmington.
94..... " J. D. Edwards .....Siler City.
94..... " W. C. Steele.....Mt. Olive.
94..... " C. E. Walker.....Huntersville.
94..... " W. J. Vestal.....Tyro Shops.
94..... " Jno. E. Logan.....Greensboro.
94..... " W. J. Jones, Jr.....Goldsboro.
94..... .. " W. L. McCauless.....Danbury.
94..... " A. A. Kent.. .....Lenoir.
94..... " A. E. Ledbetter.....Greensboro.
94 ..... " D. A. Roberson..... Guilford College.
94..... .... " A. H. Harris.....Wilmington.
94.... ..... " W. O. Spencer .....Yanceyville.
94..... " J. A. Meyers.....Lexington
94..... " L. L. Johnson.....Angeline.
94..... ..... " D. R. Schenck ....Greensboro.
94..... " J. M. Williams.....Greensboro.
94..... " A. J. Crowell.....Charlotte.
94..... ..... " T. A. Boaz.....Stoneville.
94..... ..... " G. M. Ivie.....Stoneville.

1894 Dr. G. R. Hughes.....Pollocksville.
94 " D. J. Hill.....Lexington.
94 " W. C. Ashworth.....Kernersville.
94 " G. A. Smith.....Siler City.
1895 " E. H. Sugg.....Snow Hill.
95 " F. H. Russell.....Wilmington.
95 " W. E. Murphy.....Carr.
95 " W. D. Bowen.....Bath.
95 " Geo. H. West .....Newton.
95 " W. L. Kirkpatrick.....Crab Tree.
95 " W. T. Turlington.....Fremont.
95 " J. S. Brown..... Salisbury.
95 " R. S. McGeachy.....Raleigh.
95 " C. E. Moore.....Wilson.
95 " F. W. Whitehead.....Scotland Neck.
95 " H. A. Royster.....Raleigh.
95 " Jno. W. Saine..... ....Lincolnton.
95 " J. C. Montgomery.....Charlotte.
95 " Joseph Dixon.....Ayden.
95 " B. W. West.....Eureka.
95 " Jno. Thames.....Lexington.
95 " J. T. Strickland.....Nashville.
95 " J. C. Rodman.....Washington.
95 " Claude M. Jones.....Grimesland.
95 " F. H. Arthur.....Harrell's Store.
1896 " Ab. Alexander.....Columbia.
96 " Geo. Doughton.....North Wilkesboro.
96 " C. C. Jackson.....Plymouth.
96 " W. C. Brownson.....W. Asheville.
96 " J. M. Turner.....Wilkesboro.
96 " Fred L. Potts.....Vanceboro.
96 " Chas. W. Mosby.....Kapps Mill.
96 " W. T. Holt.....Donnahu.
96 " A. Y. Linville.....Salem.
96 " Jno. Sweaney.....Leaksville.
96 " Goode Cheatham.....Henderson.
96 " James M. Parrott.....Kinston.
96 " Jos. W. Kornegay.....Mt. Olive.
96 " F. H. Holmes.....Clinton.
96 " E. Fulp.....Fulp.
96 " J. E. McLauchlin .....Cool Spring.
96 " John Bynum..... ...Winston.
96 " Chas. B. McAnally.....Madison.
96 " G. W. Pressly.....Charlotte.
96 " W. K. Reid.....Pineville.
96 " W. H. Crowell.....Whiteville.
96 " Carl V. Reynolds.....Asheville.
96 " W. G. Sutton.....Winston.

1896.....Dr. F. E. Asbury..... .....Asbury.
96..... " T. S. Faucette .....Burlington.
96..... " E. E. Klutz .....Troutman.
96..... " Anna M. Gove .....Greensboro.
96..... " Thos. B. Ashby .....Mt. Airy.
96..... " B. E. Reeves.....Lamar.
96..... " J. R. Reitzel ..... .High Point.
96..... " Chas. L. Summers.....Winston.
96..... " J. B. Smith..... ...Pilot Mountain.
96..... " J. W. Rodwell ....Cana.
1897..... " F. M. Clarke ....Beaufort.
97..... " H. L. Baird.....Asheville.
97..... " R. S. Primrose .....Newbern.
97..... " Clara E. Jones.....Goldsboro.
97... ..... " G. A. Coggeshall.....Oxford.
97..... " Chas. J. Sawyer... .....Belcross.
97..... " E. A. Moye.....Greenville.
97..... " B. K. Hays.....Oxford.
97..... " J. W. Duguid.....Dover.
97..... ... " J. H. Pool.....South Mills.
97..... " Thos. F. Costner... .....Lincolnton.
1898..... " Clarence Porter Jones ....Benson.
98..... " George A. Ramsaur.....China Grove.
98..... " L. E. Ricks..... ....Parmele.
98..... " C. C. Champion .....Mooresboro.
98..... " R. J. Teague .....Roxboro.
98... ..... " T. E. McBrayer .....Shelby.
98..... " G. S. Tenant .....Asheville.
98..... " Eug. B. Glenn.....Asheville.
98... .... " Chas. L. Minor.....Asheville.
98..... ..... " W. E. Hemphill.....Arden.
98..... " G. A. Brown .....Bear Poplar.
98..... " Jas. R. Alexander .....Lowesville.
98..... " Sam'l McK. Crowell.....Madge.
98..... " J. W. P. Smithwick . ...LaGrange.
98..... " Joy Harris.....Burlington.
98..... " D. P. Whitley .....Millingpost.
98..... ..... " H. N. Abernathy .. ..Denver.
98..... " S. F. Pfohl.....Salem.
98..... " J. A. Williams.....Prospect Hill.
98..... " J. M. Blair.....Monroe,
98 ..... " S. J. Love.....Long's Store.
98..... " W. M. Fowlkes .....Rockingham.
98..... " E. R. Russell.....Hickory.
98..... .... " J. D. Williams.....Lewisville.
98..... ..... " W. R. McCain.....McCain's.
98..... ..... " W. H. Wooten .....Davidson.
98..... " E. H. Spainhower.....Jolliet.

1898	Dr.	L. A. Crowell	Crimsic.
98	"	Geo. D. Everington	Lauringburg.
98	"	James R. Parker	Menola.
98	"	C. M. Strong	Charlotte.
98	"	J. F. Stewart	Red Shoals.
98	"	R. E. Jenkins	Belmont.
98	"	F. L. Long	Catawba.
98	"	J. E. Kerr	Pee Dee.
98	"	W. J. Jones	Outlaw's Bridge.
98	"	Jno. T. Burrus	Jonesville.
98	"	John E. S. Davidson	Lowesville.
98	"	S. P. Woody	Spring Creek.
98	"	S. T. Flippin	Siloam.
98	"	R. L. Rierson	Elks.
98	"	S. A. Stevens	Monroe.
98	"	F. H. Gilreath	Moravian Falls.
98	"	W. A. Rodgers	Franklin.
98	"	J. I. Campbell	Mint Hill.
98	"	E. C. Boyte	Mount Holly.
98	"	W. P. Knight	Oak Ridge.
98	"	Chas. Highsmith	Parkersburg.
98	"	O. P. Schaub	Culler.
98	"	Jno. B. Ray	Leaksville.
98	"	J. W. McPherson	Liberty.
98	"	Herbert B. Thomas	Newbern.
98	"	James R. Campbell	Newton.
98	"	Chas. S. Mangum	Chapel Hill.
98	"	W. Sinclair Davidson	Triangle.
1899	"	Thos. P. Cheesborough	Asheville.
99	"	W. C. Daniel	Adoniram.
99	"	B. Ray Browning	Littleton.
99	"	J. E. Moore	Sandy Mush.
99	"	J. A. Morris	Wilton.
99	"	E. R. Morris	Asheville.
99	"	C. A. Anderson	Burlington.
99	"	A. S. Pendleton	Warrenton.
99	"	D. E. Sevier	Asheville.
99	"	James Sawyer	Asheville.
99	"	J. F. Abel	Canton.
99	"	A. M. Bennett	Bryson City.
99	"	J. T. Sevier	Asheville.
99	"	Earl Grady	Tryon.
99	"	H. C. Menzies	Hickory.
99	"	Chas. S. Jordan	Asheville.
99	"	Frank G. Wilson	Gastonia.
99	"	B. R. Graham	Wallace.
99	"	G. P. Reid	Old Fort.
99	"	Chas. L. Pearson	Asheville.

1899..... .....Dr. John H. Woodcock.....Asheville.
99..... " J. B. Mathews.....Pittsboro.
99..... ..... " R. L. Allen.....Waynesville.
99..... ... " Geo. J. Gouger.....Tulin
99.. ..... " W. J McAnally..... ..High Point.
99..... " J. F. Peavy.....Asheville.
99..... ..... " T. L. Brooks.....Black Creek.
99..... " Wm. Fountain.....Leggett.
99..... " Thomas Stringfield.....Waynesvllle.
99..... " J. M. Newbern.....Powell's Point.
99..... . ..... " L B. McBrayer..... ...Asheville.
99..... ... " John McCampbell.....Morganton.
99..... .... " G. M. Van Poole.....Craven.
99..... ..... " Jos. P. Whitehead.....Rocky Mount.
99..... ..... " W. O. Nisbet.....Waxhaw.
99..... ..... " Jno. B. Wright.....Coharie.
99..... " Walter C. Lauderdale....Asheville.
99..... " H. McK. Tucker.....Raleigh.
99..... " R. T. S. Steele.....Rockingham.
99..... " H. M. S. Cason.....Edenton.
99..... " Charles VanBergen .....Asheville.
99..... " D. A. Garrison.....Bessemer City.
99..... ..... " S. H. Crocker.....Moyeton.
99..... " J. Warren Achorn.....Boston, Mass.
99..... " R. F. Yarborough.....Louisburg.
99..... " Thos. W Davis.....Louisburg.
99..... " A. Miller Whisnant .....Caroleen.
99..... " R. Hicks.....Henrietta.
99..... " W. E. Miller.....Burlington.

501 members.

HONORARY FELLOWS.

DATE OF SIGNING CONSTITUTION.			AT SESSION OF
1886	Dr.	E. M. Littlejohn, Thomasville	1890
1887	"	J. M. Lawing, Lincolnton	91
1855	"	Dr. J. G. Ramsay, Salisbury	83
55	"	Peter E. Hines, Raleigh	98
1859	"	Eugene Grissom, Pueblo, Colorado	98
1860	"	W. J. Jones, Goldsboro	98
60	"	Chas. J. O'Hagan, Greenville	98
60	"	J. W. Jones, Tarboro	98
60	"	J. K. Ruffin, Wilson	98
60	"	Wm. R. Wood, Scotland Neck	98
1867	"	P. A. Barrier, Mt. Pleasant	98
67	"	Geo. L. Kirby, Raleigh	98
67	"	J. F. Shaffner, Salem	98
1868	"	W. T. Cheatham, Henderson	98
68	"	F. J. Haywood, Raleigh	98
68	"	B. P. Alston, Henderson	98

16 Honorary Fellows.

HONORARY MEMBERS.

Dr. Hunter McGuire, Richmond, Va.
Dr. L. McL. Tiffany, Baltimore, Md.
Prof. L. A. Sayre, M. D., New York.
Dr. W. T. Howard, Baltimore, Md.
Dr. W. W. Keen, Philadelphia, Pa.
Dr. W. L. Robinson, Danville, Va.

6 Honorary Members.

Total 523.

LIST OF MEMBERS.

[ALPHABETICALLY ARRANGED.]

Members marked thus * were present at the last meeting:

*Abel, J. F.	Canton	1899
Abernathy, H. N.	Denver	1898
*Achorn, J. Warren	Boston, Mass	1899
Adams, M. R.	Statesville	1884
Alexander, Ab.	Columbia	1896
Alexander, Annie L.	Charlotte	1885
Alexander, J. R.	Lowesville	1898
*Allen, R. L.	Waynesville	1899
Alston, P. B.	Henderson	1868
Alston, Willis	Littleton	1870
*Ambler, C. P.	Asheville	1891
*Anderson, Albert	Wilson	1889
*Anderson, C. A.	Burlington	1899
*Anderson, T. E.	Statesville	1879
Anderson, W. S.	Wilson	1888
Archey, L. M.	Concord	1885
Arthur, F. H.	Harrell's Store	1895
*Asbury, F. E.	Asbury	1896
Ashby, Thos. B.	Mt. Airy	1896
Ashcraft, J. E.	Monroe	1888
Ashworth, W. C.	Kernersville	1894
Atkinson, W. H.	707 12th St., N. W. Wash'gton, D. C.	1892
Bagwell, W. H.	Greenville	1887
Bahnson, H. T.	Salem	1869
*Baird, H. L.	Asheville	1897
*Baker, Julian M.	Tarboro	1879
Barrier, P. A.	Mt. Pleasant	1867
Battle, A. J.	Wadesboro	1881
Battle, J. T. J.	Greensboro	1889
*Battle, K. P., Jr	Raleigh	1882
Battle, S. W.	Asheville	1887
Beall, J. F.	Linwood	1887

Beall, W. P.....Greensboro.....1879
Bellamy, Russell.....152 W. 57th St., N. Y.....1892
Bellamy, W. J. H.....Wilmington.....1870
Bell, G. M.....Wakefield.....1893
*Bennet, A. M.....Bryson City.....1899
Best, B. W.....Eureka.....1895
*Black, J. C.....Pioneer Mills.....1891
Blair, J. M.....Monroe.....1898
Blount, J. G.....Washington.....1893
Blue, K. A.....Laurinburg.....1892
Boaz, Thos. A.....Stoneville.....1894
Bobbitt, W. H.....Marion, Ind.....1883
*Boddie, N. P.....Durham.....1883
*Bolton, Mayland.....Rich Square.....1885
Boyte, E. C.....Mount Holly.....1898
*Booth, S. D.....Oxford.....1885
Booth, J. W.....Stem.....1890
*Booth, T. L.....Oxford.....1890
Bowen, W. D.....Bath.....1895
*Brevard, R. J.....Charlotte.....1887
Broadnax, J. G.....Greensboro.....1888
*Brooks, T. L.....Black Creek.....1899
Brown, G. A.....Bear Poplar.....1898
Brown, J. S.....Salisbury.....1895
Brown, Zeno.....Greenville.....1885
*Browning, B. Ray.....Littleton.....1899
*Brownson, W. C.....W. Asheville.....1896
Bullock, W. B.....Franklinton.....1893
Bullock, D. W.....Wilmington.....1875
Burbank, T. S.....Wilmington.....1880
*Burroughs, J. A.....Asheville.....1884
Burrus, J. T.....Jonesville.....1898
Bynum, Jno.....Winston.....1896
*Caldwell, D. G.....Concord.....1885
Campbell, J. I.....Mint Hill.....1898
Campbell, James R.....Newton.....1898
*Carr, A. G.....Durham.....1873
*Cason, H. M. S.....Edenton.....1899
Cate, G. V.....Taylor's Bridge.....1892
*Champion, C. C.....Mooresboro.....1898
Cheatham, A.....Durham.....1888
*Cheatham, Goode.....Henderson.....1896
Cheatham, W. T.....Henderson.....1868
*Cheeseborough, Thos. P.....Asheville.....1899
Chenault, W. F.....Elmwood.....1891
Clarke, F. M.....Beaufort.....1897
Cobb, W. H., Jr.....Goldsboro.....1890
*Cobb, W. H. H.....Goldsboro.....1878

Coggeshall, G. A .....Oxford.....1897
*Costner, Thos. F.....Lincolnton.....1897
*Cotten, A. T.....Morrisville.....1885
*Covington, J. M.....Rockingham.....1879
Cox, B. T.....Redalia.....1888
Cox, E. L.....Jacksonville.....1892
Cox, J. J.....High Point.....1879
Cox, R. E.....Fremont.....1894
*Crocker, S. H .....Moyeton.....1899
Croom, J. D.....Maxton.....1887
Crouse, W. L.....Lincolnton.....1887
Crowell, A. J.....Charlotte.....1894
*Crowell, L. A.....Crimsic.....1898
Crowell, Sam'l McK.....Madge.....1898
*Crowell, W. H.....Whiteville.....1896
Daligny, C .....El Dorado.....1891
*Dalton, D. N.....Winston.....1896
*Daniel, W. C.....Adoniram.....1899
*Davidson, John E. S.....Lowesville.....1898
Davidson, W. Sinclair .....Triangle.....1898
*Davis, R. L.....Bryson City.....1893
*Davis, Thos. W.....Louisburg.....1899
DeArmond, J. Mc .....Mint Hill.....1887
Dixon, Joseph.....Ayden.....1895
Dodd, G. H.....Clayton.....1887
*Dodson, H. H .....Milton.....1886
Dorsett, H. W .....Bethany.....1885
Doughton, Geo.....North Wilkesboro.....1896
Duffy, Francis.....Newbern.....1872
Duguid, J. W.....Dover.....1897
*Ector, I. G.....Friendship.....1879
Edgerton, H. K.....Selma.....1891
*Edwards, G. C.....Hookerton.....1883
Edwards, J. D.....Siler City.....1894
*Egerton, J. L.....Hendersonville.....1890
*Ellis, R. C.....Shelby.....1891
Everington, Geo. D.....Laurinburg.....1898
Faison, I. W.....Charlotte.....1878
Faison, J. A.....Bennettesvillle, S. C.....1888
Faison, J. M.....Faison.....1885
Faison, W. W .....Goldsboro.....1883
Faucette, T. S.....Burlington.....1896
Fearington, J. P.....Winston.....1890
Fearing, W. B.....Manteo.....1889
*Few, C.....Hendersonville.....1891
Fitch, W. E.....Savannah, Ga.....1892
Fitzgerald, J. Y.....Monroe.....1891
*Fletcher, G. W.....Fletchers.....1881

*Fletcher, M. H.	Asheville	1881
Flippin, J. M.	Salisbury	1893
*Flippin, S. T.	Siloam	1898
*Fountain, Wm.	Leggett	1899
Fox, M. F.	Gilmer's Store	1885
Fowlkes, W. M.	Rockingham	1898
Freeman, W. G.	Murfreesboro	1884
Fulp, E.	Fulp	1896
*Futrell, M. H.	Conway	1884
Galey, W. R.	Graham	1893
Galloway, W.C.	Wilmington	1880
*Garrison, D. A.	Bessemer City	1899
Gates, F. P.	Manteo	1892
Gibbon, John H.	Philadelphia	1893
Gibbon, R. L.	Charlotte	1890
Gill, Robert J.	Henderson	1883
Gilmer, C. S.	Greensboro	1894
Gilreath, F. H.	Moravian Falls	1898
*Glenn, Eug. B.	Asheville	1898
*Goelet, E. B.	Saluda	1888
Goley, W. R.	Graham	1893
Goodman, E. G.	El Paso	1892
Goodwin, A. W.	Raleigh	1887
Gordon, J. R.	Jamestown	1894
*Gouger, Geo. J.	Tulin	1899
*Gove, Anna M.	Greensboro	1896
*Grady, Earle.	Tryon	1899
Grady, J. C.	Magnolia	1888
*Graham, B. R.	Wallace	1899
Graham, Geo. W.	Charlotte	1877
Graham, Joseph.	Charlotte	1874
Graham, W. A.	Charlotte	1890
Gray, R. F.	Winston	1896
Grimes, R. J.	Bethel	1893
Grimsley, J. E.	Snow Hill	1884
Grissom, Eugene.	Pueblo, Col.	1859
Hadley, J. M.	LaGrange	1873
Haigh, T. D.	Fayetteville	1874
Hallsey, B. F.	Roper	1894
Hargrave, R. H.	Robersonville	1879
Harper, M. W.	Dunn	1886
Harper, C. T.	Wilmington	1894
Harrell, W. H.	Williamston	1890
Harrell, W. J.	Aulander	1892
Harrell, J. F.	Whiteville	1877
Harris, A. H.	Wilmington	1894
Harris, F. R.	Henderson	1883
*Harris, H. H.	Wake Forest	1886

Harris, Joy.....Burlington 1898
Hassell, S.....Plymouth 1893
Hatch, P. R.....Youngsville.....1892
*Hays, B. K.....Oxford 1897
Haywood, F. J.....Raleigh.....1868
Headen, W. E.....Morehead City.....1891
*Hemphill, W. E.....Arden.....1898
Henley, S. A.....Asheboro 1888
*Herring, N. B.....Wilson 1888
Herron, A. M.....Charlotte.....1884
Hester, J. R.....Prospect Hill 1894
*Hicks, R.....Henrietta 1899
Highsmith, Chas. .....Parkersburg.....1898
*Highsmith, J. F.....Fayetteville 1893
*Hill, D. J .....Lexington.....1894
Hill, Joel.....Lexington.....1886
Hill, L. H. .....Germanton.....1877
Hill, Thomas.....Goldsboro.....1880
Hines, P. E.....Raleigh.....1855
Hodges, J. A.....Richmond, Va.....1885
Hodges, J. M.....LaGrange.....1883
Hollingsworth, W. K.....Mt. Airy.....1893
Holmes, F. H.....Clinton. 1896
Holt, W. T.....Donnahu.....1896
Hornaday, E. H.....Willow Green.....1878
*Houck, Albert.....Lenoir 1893
Hudson, W. L .....Dunn.....1883
Hughes, F. W .....Newbern.....1885
Hughes, G. R .....Pollocksville.....1894
Hunter, L. W.....Sardis.....1880
Ingram, C. B.....Mt. Gilead.....1892
Irwin, J. R.....Charlotte 1882
Ivie, G. M.....Stoneville.....1894
Ivey, W. P.....Lenoir 1891
Jackson, C. C.....Plymouth 1896
Jenkins, C. L.....Conetoe.....1894
Jenkins, J. D.....Crisp 1894
Jenkins, R. E.....Belmont 1898
Jewett, R. D.....Winston 1890
Johnson, H.....Grifton 1892
Johnson, L. L.....Angeline.....1894
Jones, Clara E.....Goldsboro 1897
Jones, C. M.....Grimesland 1895
Jones, Clarence Porter.....Benson 1898
Jones, J. W.....Tarboro.....1860
Jones, S. B.....Charlotte 1879
Jones, W. J.....Goldsboro 1860
Jones, W. J.....Outlaw's Bridge.....1898

Jones, W. J., Jr.....Goldsboro.....1894
Jones, A. G.....Walnut Cove.....1892
Jordan, T. M.....Hookerton.....1881
*Jordan, Chas. S.....Asheville.....1899
Julian, C. A.....Thomasville.....1893
Kent, A. A.....Lenoir.....1894
Kerr, J. E.....Pee Dee.....1898
King, O. D.....Albemarle.....1887
King, E. de la R.....Beaufort.....1880
*Kirby, Geo. L.....Raleigh.....1867
*Kirkpatrick, W. L.....Crab Tree.....1895
Kloutz, W. J.....Alexander.....1891
Klutz, E. E.....Troutman.....1896
Knight, J. B. H.....Williamston.....1891
Knight, W. P.....Oak Ridge.....1898
Knox, A. W.....Raleigh.....1880
Kornegay, Jos. W.....Mt. Olive.....1896
Lafferty, J. S.....China Grove.....1890
*Laird, E. C.....Hot Springs.....1890
Lane, W. W.....Wilmington.....1870
*Lauderdale, W. C.....Asheville.....1899
Laughinghouse, C. O'H.....Greenville.....1894
Lawing, J. M.....Lincolnton.....1887
Laxton, J. L.....Morganton.....1891
Ledbetter, A. E.....Greensboro.....1894
Leggett, K.....Hobgood.....1885
Lewis, C. H.....Farmers.....1894
Lewis, G. W.....Fremont.....1888
*Lewis, H. W.....Jackson.....1887
*Lewis, R. H.....Raleigh.....1877
Lilly, W. H.....Concord.....1874
*Linville, A. Y.....Salem.....1896
Littlejohn, E. M.....Thomasville.....1896
Loftin, P. B.....Grifton.....1890
Logan, J. E.....Greensboro.....1894
*Long, B. L.....Hamilton.....1883
Long, F. L.....Catawba.....1898
*Long, Geo. W.....Graham.....1877
*Long, J. W.....Salisbury.....1884
*Long, T. W.....Catawba.....1884
*Lott, H. S.....Winston.....1888
Love, S. J.....Long's Store.....1898
Love, Wm. J.....Wilmington.....1870
Lumsden, W. J.....Elizabeth City.....1888
*Lyle, S. H.....Franklin.....1881
*Mangum, C. S.....Chapel Hill.....1898
Marsh, J. H.....Fayetteville.....1890
*Matthews, J. B.....Pittsboro.....1899

Matthews, T. A.	Castalia	1893
Mayo, W. R	Jamesville	1892
Martin, R. A	Roxboro	1890
*Mease, J. H.	Canton	1894
Meisenheimer, C. A.	Charlotte	1882
Meisenheimer, T. F	Morven	1881
*Menzies, H. C.	Hickory	1899
Mercer, W. P.	Elm City	1880
Meyers, J. A.	Lexington	1894
Michaux, E. R.	Greensboro	1890
Miller, J. F.	Goldsboro	1873
*Miller, W. E.	Burlington	1899
Mills, R. W.	Troutman	1892
*Minor, Chas. L.	Asheville	1898
Monroe, A. J.	Jonesboro	1891
Monroe, W. A.	Sanford	1888
Montague, S. J.	Winston	1880
Montgomery, J. C.	Charlotte	1895
*Montgomery, S. L	Concord	1885
Moore, C. E.	Wilson	1875
Moore, E. G.	Elm City	1890
Moore, R. A.	Durham	1893
*Moore, J. E.	Sandy Mush	1899
Moran, G. H	Morganton	1888
Morrill, Jenness	Falkland	1888
*Morris, E. R.	Asheville	1899
*Morris, J. A.	Wilton	1899
Mosby, Chas. W.	Kapp's Mills	1996
Moye, E. A.	Greenville	1897
*Munroe, J. P.	Davidson	1890
*Murphy, P. L.	Morganton	1873
Murphy, W. E.	Carr	1895
Myers, J. A.	Lexington	1894
*McAnally, Wm. J.	High Point	1899
McAnally, Chas. B.	Madison	1896
McBrayer, T. E.	Shelby	1898
*McBrayer, L. B.	Asheville	1899
McCain, W. R.	McCain's	1898
*McCampbell, John	Morganton	1899
McCauless, W. V.	Danbury	1889
McCauless, W. L.	Danbury	1894
McClure, S. C.	Statesville	1886
McDonald, A. D.	Wilmington	1879
McDougald, A.	Hope Mills	1888
McDowell, W. O	Scotland Neck	1883
McDuffie, W. C	Fayetteville	1876
McGeachy, R. S.	Raleigh	1895
McGee, J. W	Raleigh	1885

McGee, J. W., Jr ..... Raleigh 1888
McKee, James ..... Raleigh 1870
*McKenzie, W. W ..... Salisbury 1894
McKinnon, Arch ..... Chadbourn 1888
McLauchlin, J. E ..... Cool Spring 1896
McLean, N. M ..... Gibson's Station 1883
McMillan, B. F ..... Plain View 1884
McMillan, J. D ..... Lumberton 1876
McMillan, Wm. D ..... Wilmington 1892
McMullan, Oscar ..... Elizabeth City 1889
*McMullan, T. S ..... Hertford 1892
McMullen, J. H ..... Edenton 1874
McNeill, J. W ..... Fayetteville 1876
McPherson, J. W ..... Liberty 1898
Nelson, R. J ..... Robersonville 1893
*Newbern, J. M ..... Powell's Point 1899
Nichols, C. G ..... Roxboro 1891
Nicholson, J. L ..... Richlands 1880
Nicholson, J. F ..... Bath 1885
Nicholson, J. Alston ..... Washington 1892
Nicholson, W. H ..... Louisburg 1893
Noble, R. J ..... Selma 1878
*Nisbet, W. O ..... Waxhaw 1899
*O'Donoghue, D ..... Charlotte 1887
*O'Hagan, Chas. J ..... Greenville 1860
O'Kelly, J. M ..... Williams' Mill 1885
Palmer, R. W ..... Gulf 1891
Parker, Jas. R ..... Menola 1898
Parris, D. C ..... Hillsboro 1887
*Parrott, James M ..... Kinston 1896
Pate, W. T ..... Gibson's Station 1885
*Patterson, A. J ..... Liberty 1892
Patterson, R. A ..... Aurelian Springs 1887
Payne, R. L ..... Norfolk, Va 1881
*Pendleton, A. S ..... Warrenton 1899
*Pemberton, W. D ..... Monroe 1887
*Pearson, Chas. L ..... Asheville 1899
*Peavy, J. F ..... Asheville 1899
Perry, M. P ..... Macon 1884
Pfohl, S. F ..... Salem 1898
Pharr, T. F ..... Concord 1881
Pharr, W. W ..... Newell 1885
*Picot, L. J ..... Littleton 1875
*Poole, C. M ..... Craven 1880
*Poole, G. M. Van ..... Craven 1889
Poole, J. H ..... South Mills 1897
Potts, Fred L ..... Vanceboro 1896
Powell, W. E ..... Gastonia 1885

*Pressly, G. W.	Charlotte	1896
Primrose, R. S	Newbern	1897
Prince, D. M.	Laurinburg	1879
*Pritchard, W. B	105 W. 73d St. New York City	1884
Pugh, E. W.	Windsor	1885
*Purefoy, G. W	Asheville	1884
*Ramsaur, George A.	China Grove	1898
Ramsay, J. G.	Salisbury	1855
Ray, John B.	Leaksville	1898
*Ray, J. L.	Burnsville	1890
*Reagan, J. A.	Weaverville	1881
Reeves, B. E.	Lamar	1896
Register, E. C.	Charlotte	1887
Reid, J. T.	Old Fort	1891
*Reid, G. P.	Old Fort	1899
Reid, W. K.	Pineville	1896
Reitzel, J. R.	High Point	1896
Renn, G. A.	Raleigh	1893
*Reynolds, Carl V	Asheville	1896
Richardson, W. T.	Greensboro	1893
Ricks, L. E.	Parmele	1898
Riddick, Thos. M.	Woodville	1894
Rierson, R. L.	Elks	1898
Rieves, Jas. T	Julian	1893
Ritter, F. W.	Moyock	1885
Roberson, C. N	Ascend	1893
Roberson, D. A	Guilford College	1894
Robertson, J. B.	Clayton	
Robinson, G. J.	Smithfield	1884
Robinson, M. E.	Goldsboro	1886
Rodgers, W. A.	Franklin	1898
Rodman, J. C.	Washington	1895
Rodwell, J. W.	Cana	1896
*Royster, H. A.	Raleigh	1895
Royster, W. I.	Raleigh	1871
*Ruck, Karl von	Asheville	1891
Ruffin, J. K.	Wilson	1860
*Russell, E. R.	Hickory	1898
Russell, F. H.	Wilmington	1895
Saine, Jno. W.	Lincolnton	1895
Sanderford, J. F.	Creedmore	1891
Sawyer, Chas. J.	Belcross	1897
*Sawyer, James	Asheville	1899
Schaub, O. P.	Culler	1898
Schenck, D. R.	Greensboro	1894
Seawell, F. H.	Archer Lodge	1893
*Sevier, J. T.	Asheville	1899
*Sevier, D. E.	Asheville	1899

Sexton, J. A	Raleigh	1879
Shaffner, J. F	Salem	1867
Shamberger, J. B	Star	1892
Shepard, J. C	Wilmington	1880
Sievers, N. S	Salem	1877
*Sikes, G. T	Grissom	1884
Sinclair, Duncan	Rowland	1888
Smith, Duncan	Athens	1888
Smith, G. A	Siler City	1894
Smith, J. B	Pilot Mountain	1896
Smith, R. A	Goldsboro	1882
Smithwick, J. W. P	LaGrange	1898
Snipes, E. P	Jonesboro	1890
Spainhower, E. H	Jolliet	1898
*Speight, R. H	Wrendale	1875
Spencer, W. O	Yanceyville	1894
*Stafford, W. G	Burlington	1890
Stancell, R. H	Margarettsville	1887
Stansill, J. M	Rockingham	1880
Stanton, D. A	High Point	1891
Steele, W. C	Mt. Olive	1894
*Steele, R. T. S	Rockingham	1899
Stevens, J. A	Clinton	1883
*Stevens, M. L	Concord	1893
Stevens, S. A	Monroe	1898
Stewart, J. F	Red Shoals	1898
Street, N. H	Newbern	1883
Strickland, E. F	Bethania	1893
Strickland, J. T	Nashville	1895
*Stringfield, Thomas	Waynesville	1899
Strong, C. M	Charlotte	1898
Stroud, O. B	Ore Hill	1894
Sugg, E. H	Snow Hill	1895
Summerell, E. M	Mill Bridge	1883
Summers, Chas. L	Winston	1896
Sutton, W. G	Winston	1896
*Sweaney, John	Leaksville	1896
Tate, R. W	Greensboro	1887
*Tayloe, D. T	Washington	1885
*Tayloe, Joshua	Washington	1893
Taylor, H. L	St. Paul, Minn	1871
Taylor, I. M	Morganton	1883
Taylor, W. S	Mt. Airy	1894
Teague, R. J	Roxboro	1898
*Tennent, G. S	Asheville	1898
*Thames, John	Lexington	1895
Thomas, Geo. Gillett	Wilmington	1871
Thomas, Herbert B	Newbern	1898

Thomas, R. W. ..... Thomasville 1880
Tucker, J. H ..... Henderson 1878
*Tucker, H. McK ..... Raleigh 1899
Tull, Henry ..... Kinston 1876
Turlington, W. E ..... Benson 1885
*Turlington, W. T ..... Fremont 1895
Turner, J. A ..... High Point 1891
Turner, J. M ..... Wilkesboro 1896
Utley, B. S ..... Holly Springs 1886
*VanBergen, Charles ..... Asheville 1899
Vestal, W. J ..... Tyro Shops 1894
Vick, J. W ..... Selma 1878
Wakefield, W. H ..... Charlotte 1893
Waldrop, J. G ..... Hendersonville 1891
Walker, C. E ..... Huntersville 1894
Walton, J. C ..... Reidsville 1879
Watson, D. I ..... Southport 1891
*Watson, J. A ..... Asheville 1891
*Way, J. Howell ..... Waynesville 1887
*Weaver, H. B ..... Asheville 1881
West, B. W ..... Eureka 1895
*West, G. H ..... Newton 1895
Wharton, L. D ..... Smithfield 1892
*Whisnant, A. M ..... Caroleen 1899
Whitaker, R. A ..... Trenton 1886
Whitehead, F. W ..... Scotland Neck 1895
Whitehead, John ..... Salisbury 1880
Whitehead, W. H ..... Rocky Mount 1875
*Whitehead, R. H ..... Chapel Hill 1891
*Whitehead, J. P ..... Rocky Mount 1899
White, J. W ..... Wilkesboro 1890
Whiteside, R. F ..... Hickory 1881
Whitfield, W. C ..... Quinerly 1884
Whitley, D. P ..... Millingpost 1898
Williams, B. B ..... Keyser 1893
Williams, H. C ..... Aberdeen 1893
*Williams, J. H ..... Asheville 1881
Williams, J. M ..... Greensboro 1894
Williams, J. A ..... Prospect Hill 1898
Williams, J. D ..... Lewisville 1898
Williams, T. B ..... Ridgeway 1893
*Wilson, W. H ..... Gastonia 1891
Wilson, A. R ..... Greensboro 1882
Wilson, F. G ..... Gastonia 1899
Wood, Wm. R ..... Scotland Neck 1867
*Woodcock, J. H ..... Asheville 1899
Woodley, C. B ..... Kinston 1888
*Woody, S. P ..... Spring Creek 1898

Wooten, W. H.	Davidson	1898
Wright, S. P.	Wilmington	1892
Wright, J. B.	Coharie	1899
Yarborough, R. F.	Louisburg	1899
York, A. D.	Morrisville	1885
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